

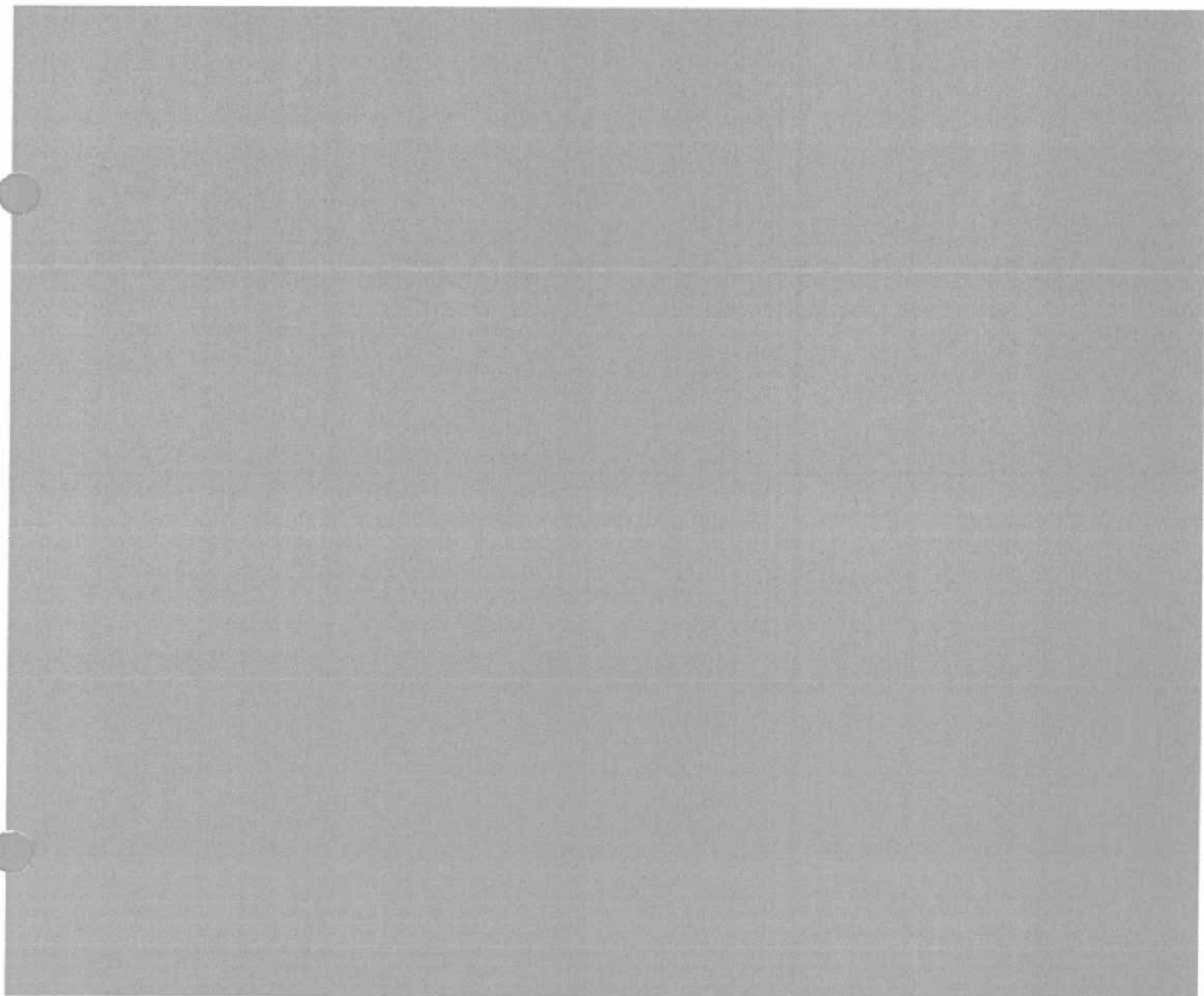


Environment

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December 2011

Interim Remedial Measure Work Plan  
Duracell Inc. Site  
Sleepy Hollow, Westchester County,  
New York  
NYSDEC Site Registry No. 360011



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December 22, 2011

Reviewed By: Michael L. Spera, PE

DATE

*I, Michael L. Spera, certify that I am currently a New York State Licensed PE (#073731) as defined in 6 NYCRR Part 375 and that this Interim Remedial Measure Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).*



December 22, 2011

Reviewed By: Michael J. Doherty, PE

DATE

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## 1.0 Introduction and Background

This Interim Remedial Measure Work Plan (IRMWP) addresses the remediation of off-site properties in the vicinity of the Duracell Inc. Site (the "Site"), which is located at 60 Elm Street, Village of Sleepy Hollow, Westchester County, New York and is currently owned by the Village of Sleepy Hollow. The Site is listed by the New York State Department of Environmental Conservation (NYSDEC) as Registry No. 360011. The location of the Site is depicted on Figure 1.

The IRMWP has been prepared pursuant to the Order on Consent and Administrative Settlement, Index No. W3-1145-09-11, Site No. 360011 (Order) between The Gillette Company (Gillette) and the NYSDEC, effective January 1, 2010.

Field activities pertaining to the initial phase of the Remedial Investigation (RI) were performed between September 7, 2010 and December 3, 2010 on properties surrounding the Site consistent with the Order on Consent and in accordance with the NYSDEC approved Phase I RI Work Plan (RIWP) dated August 20, 2010 (AECOM, 2010). The primary purpose of the Phase I RI was to delineate (horizontally and vertically) the extent of potential mercury and lead impacts to off-Site soils. The Phase I RI activities have been completed and the results have been submitted to the NYSDEC in the Phase I RI Data Summary Report (DSR) (AECOM, 2011a). The NYSDEC approved the Phase I RI DSR on October 13, 2011.

The initial draft conceptual IRMWP had been prepared by Brown and Caldwell Associates (BCA) on behalf of Gillette. The NYSDEC provided comments to the March 2010 draft conceptual IRMWP in a letter to Gillette dated May 28, 2010. AECOM was subsequently retained by Gillette to provide remedial investigation support, including incorporating the NYSDEC's May 28, 2010 and September 29, 2010 comments into this revised IRMWP. Upon receipt of the results of the Phase I RI, Gillette sent a letter to NYSDEC dated March 1, 2011 requesting the opportunity to provide supplemental information prior to IRMWP approval. Gillette submitted a revised IRMWP in April 2011 (AECOM, 2011b) which incorporated the findings of the Phase I RI and included the basis for the development of a site-specific soil cleanup objective (SSSCO) for mercury in accordance with the NYSDEC's CP-51 Soil Cleanup Guidance (NYSDEC, 2010c). After thorough review, the NYSDEC, in consultation with the New York State Department of Health (NYSDOH) provided comments to Gillette in a letter dated June 2, 2011. Gillette provided responses to the comments in a letter dated July 6, 2011 and met with the NYSDEC and NYSDOH on July 7, 2011. Gillette submitted a revised *Technical Memorandum – Development of Site-Specific Soil Cleanup Objective* on August 1, 2011 (Gillette/AECOM/ENVIRON, 2011) that proposed a revised SSSCO for mercury and provided information supporting this proposal. In a letter dated September 23, 2011, the NYSDEC, in consultation with the NYSDOH, approved Gillette's revised proposed SSSCO for mercury. This conceptual IRMWP incorporates the approved SSSCO (remedial goal) for mercury as well as findings from the Phase I RI.

This conceptual IRMWP refers to and incorporates other project documents submitted as part of the approved Phase I RIWP and Phase I RI DSR, and are listed as follows:

- A Field Sampling Plan (FSP) that specifies detailed sampling and data gathering methods.

- A Quality Assurance Project Plan (QAPP) that describes quality assurance and quality control protocols necessary to achieve the initial data quality objectives.
- A Health and Safety Plan (HASP) to protect persons at and in the vicinity of the Site during performance of the RI field activities.
- A Community Air Monitoring Plan (CAMP) that describes air monitoring for providing documentation that the community is not adversely impacted as a result of RI and IRM activities.
- A Historic Fill and Soil Background Evaluation report, included as Appendix E of the Phase I RI DSR, that provides information on the history of the Site and surrounding area with a focus on the presence and characteristics of historic fill material (HFM).

A Citizen Participation Plan (CPP) was developed (AECOM, 2011c) for the Site which was approved by the NYSDEC on May 3, 2011. This CPP will be updated as necessary throughout the course of the remedial program at the Site.

## **1.1 Physical Setting and Description of the Site**

The Site is located on the southeast corner of the intersection of Andrews Lane and Elm Street, at 60 Elm Street in the Village of Sleepy Hollow, Westchester County, New York (Figure 2). The Site is the location of the former Duracell manufacturing operations.

The Site is currently owned by the Village of Sleepy Hollow and has been developed into a parking lot. The current Site configuration consists of an asphalt-paved parking area equipped with curbs, landscaped islands, and lighting. The exterior portions of the Site consist of concrete sidewalks and/or grass, and landscaped areas. A chain-link fence extends along the eastern and southern property boundaries to separate the adjacent residential properties.

The Site was operated as a battery manufacturing facility from 1945 until operations ceased in 1984. The facility was originally operated by the P.R. Mallory Company which later became Duracell in 1979.

Until 1975, the primary products were mercuric oxide and silver oxide batteries; however, a limited number of other specialty batteries and prototypes were also manufactured. In 1975, production was limited primarily to the manufacture of lithium button batteries, although a smaller volume of lithium batteries was produced than the previously produced mercuric oxide batteries.

The former manufacturing facility footprint encompassed nearly the entire present day parking lot. Two employee parking areas for the facility formerly occupied portions of the properties located immediately across Elm Street and Andrews Lane, including the Village of Sleepy Hollow Senior Center and Barnhart Park, respectively. The facility was decommissioned and demolished in 1990 and 1991.

## **1.2 Environmental Conditions**

### **1.2.1 Prior Conditions and Site Remediation**

In 1988, Duracell entered into an Order on Consent and Administrative Settlement, Index No. W3-0160-8711, Site No. 360011 (NYSDEC, 1988), with the NYSDEC to complete an

investigation and remediation of on- and off-Site soils. Airborne discharges from the former manufacturing facility operations (e.g., exhaust from air handling units, operation and maintenance of cyclones and bag houses used for particulate collection) in the form of mercuric oxide (inorganic salts) were cited as the source of the contamination. An environmental investigation was conducted in 1989 which identified primarily mercury impacted soils on the Site and adjacent properties. The remediation included the excavation and removal of soils on- and off-Site with concentrations of mercury exceeding the Site-specific risk-based remedial goal of 35 to 45 mg/kg that was approved by the NYSDEC at the time.

In 1990, approximately 2,100 cubic yards (cy) of mercury-impacted soils were removed from the Site. Subsequent removals of more than 600 cy of impacted-soils were completed to a depth of 6 inches on eight adjacent residential properties in 1990 and 1991. In addition, 1,600 cy of impacted soils were removed from the former Duracell parking area across Andrews Lane in 1993. As per the 1988 Order with the NYSDEC, on-Site and off-Site impacted soils were remediated to the risk-based Site-specific remedial goals approved by the NYSDEC at that time. Accordingly, in 1994, the NYSDEC removed the Site from the NYS Registry of Inactive Hazardous Waste Disposal Sites.

### **1.2.2 Prior Off-Site Sampling**

In December 2006, the NYSDEC promulgated regulations [6 NYCRR Part 375 (Part 375)] which established new Soil Cleanup Objectives (SCOs) for numerous constituents, including mercury and lead. The Part 375 SCOs for inorganic salts of mercury (based on mercuric chloride) and lead are 1.2 mg/kg and 400 mg/kg, respectively. In July 2008 a soil sample was collected from a residential property adjacent to and south of the Site and analyzed for metals, as part of a proposed real estate transaction. Mercury was detected in this sample at a concentration of 4.34 mg/kg. The findings from the residential sampling were provided to the NYSDEC and the NYSDOH, which prompted the NYSDEC to initiate an investigation that included the sampling of soils from select properties in the vicinity of the Site and characterization of local background conditions. The 2009 NYSDEC investigation is summarized in Section 2.1 of this work plan.

### **1.2.3 Current Status**

As presented in Section 2, Gillette, in accordance with the NYSDEC-approved Phase I RIWP (AECOM, 2010), has investigated the levels of mercury and lead present in the top 3 feet (ft) of soils on properties within the Phase I Investigation Area. The results of this investigation are presented in the Phase I RI DSR.

## **1.3 IRM Objectives**

The objective of the IRM is to safely remove soil containing concentrations of mercury greater than the site-specific soil cleanup objective (SSSCO) for inorganic mercury on properties in the vicinity of the Site for off-site treatment/disposal. Information on the derivation of the SSSCO for inorganic mercury is presented in the *Technical Memorandum – Development of Site-Specific Soil Cleanup Objective* (Gillette/AECOM/ENVIRON, 2011). Information from the NYSDEC investigation in 2009 and from the initial phase of the remedial investigation completed by AECOM on behalf of Gillette in 2010 will be used to determine the area and volumes targeted for removal. After soil removal, the area of excavation will be backfilled and restored.

## 1.4 Report Organization

This report consists of nine sections with associated figures and appendices. This introduction chapter (**Section 1 – Introduction**) presents the prior and current conditions at the Site, the IRM objectives, and the organization of the report. The remainder of the report is structured as follows:

- **Section 2 – Summary of Data Supporting the Interim Remedial Measure:** summarizes the results of the NYSDEC sampling in 2009 and the Phase I RI in 2010.
- **Section 3 – Description of Interim Remedial Measure Activities:** presents the scope of work to be completed as part of IRM activities.
- **Section 4 – Temporary Controls:** presents the physical and environmental controls to be utilized during IRM activities.
- **Section 5 – Health and Safety/Air Monitoring Plans:** summarizes the health and safety and air monitoring activities to be implemented during IRM activities.
- **Section 6 – Contingency Plans:** presents the activities to be implemented as a contingency to unstable conditions, airborne constituents, or severe weather.
- **Section 7 – Oversight and Documentation:** presents the documentation activities to be completed as part of IRM activities.
- **Section 8 – Schedule:** presents the anticipated schedule for implementing the scope of this IRMWP.
- **Section 9 – References:** presents a bibliography of documents referenced in the text of the report.

## 2.0 Summary of Data Supporting the Interim Remedial Measure

This section describes what is currently known about the environmental conditions at the properties adjacent to the Site.

### 2.1 NYSDEC Soil Investigation

As discussed in Section 1.2.2, in July 2008, as part of a potential property transaction, a soil sample was collected from a residential property adjacent to and south of the Site and reportedly analyzed for metals. Mercury was detected in this sample at a concentration of 4.34 mg/kg. This finding was provided to the NYSDEC and the NYSDOH, which prompted the NYSDEC to initiate an investigation that included the sampling of soils from select properties in the vicinity of the Site and characterization of local background conditions.

In May 2009, 37 private properties and two Village-owned properties, including Barnhart Park located across Andrews Lane from the Site, were sampled as part of the investigation. Soil samples were collected from select depth intervals including: 0 to 2 inches, 2 to 6 inches, and 6 to 12 inches below ground surface (bgs). Samples were analyzed for total mercury via USEPA Method SW-846 7471A and total lead via USEPA Method SW-846 6010B by Test America Laboratories of Connecticut. Thirty-six (36) of the 39 nearby properties displayed concentrations of total mercury in excess of the NYSDEC's 6 NYCRR Part 375 SCO for inorganic mercury (mercuric chloride), with elevated levels observed to a depth of 12 inches bgs. Thirty-one (31) of the 39 nearby properties displayed concentrations of total lead in excess of the NYSDEC's Part 375 SCO for lead.

Although the levels were above the Part 375 SCOs, as stated in the NYSDEC/NYSDOH Fact Sheet (October, 2009), "*soil concentrations greater than the SCOs are not necessarily a health concern.*" The NYSDOH also stated the following:

*"We do not expect there to be any immediate health effects from exposure to inorganic mercury or lead in the soil, because the exposure levels that cause these effects are much higher than any short-term contaminant exposures we would expect from activities in your yard. However, you can reduce the chances for long-term exposure to inorganic mercury and lead by taking steps to minimize direct and repeated contact (particularly among young children) with bare soils. Maintenance of a grass or mulch cover will help prevent direct contact with the soil."*

The NYSDEC also conducted a limited background investigation that included the collection of soil samples from a nearby town park (Patriot's Park in Tarrytown), Kingsland Point County Park, and Rockefeller State Park Preserve in May 2009. Patriot's Park and Kingsland Point County Park are located approximately 0.4 miles to the southeast and north of the Site, respectively. Rockefeller State Park Preserve is located approximately 1.5 miles to the north/northeast of the Site.

Twenty-four (24) total surficial soil samples were collected from 0 to 2 inches bgs within the parks and analyzed for total mercury and total lead by USEPA Methods SW-846 7471A and 6010B, respectively, to characterize background conditions.

Mercury was detected in each of the tested samples in a range of 0.027(J) mg/kg (the letter J next to this sample result indicates the analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample) to 24 mg/kg, the highest of which was collected from the Rockefeller State Park Preserve, in the vicinity of a railroad line. Lead was also detected in each background sample ranging from 18.1 mg/kg to a high of 2,560 mg/kg in a sample collected from Kingsland Point Park.

## 2.2 Remedial Investigation

The Phase I RI DSR submitted to the NYSDEC describes the investigative activities conducted in 2010 to define the nature and extent of Site-related impacts on off-Site properties, pursuant to the NYSDEC-approved Phase I RIWP. In order to prioritize investigation and remediation for off-Site properties, the RI has been divided into phases. The overall objective of the first phase of the RI was to define the nature and extent of Site-related impacts on off-Site properties.

In particular, as described in the RIWP and Phase I RI DSR and summarized below, a component of the Phase I RI was to collect and analyze samples to determine the horizontal and vertical limits of lead and mercury contamination on the off-Site properties.

Based on observed property conditions, utility mark-outs and clearance, and the geophysical survey, soil sample locations were selected. A grid approach was employed to develop the sample location layout. A maximum 30-foot grid spacing was selected to comply with the minimum requirements identified in "DER-10 Technical Guidance for Site Investigation and Remediation" ("DER-10" - NYSDEC, 2010b), which are one bottom sample per 900 square feet and one sidewall sample per 30 feet of sidewall. The grid was centered on each property and adjusted as necessary to accommodate property features and achieve a minimum requirement of one sample in the front yard and one sample in the back yard.

Soils were collected continuously and logged in accordance with the Burmister soil classification system and classified using the Unified Soil Classification System (USCS) in accordance with the FSP. Soil boring logs are included in the Phase I RI DSR.

Based on a review of existing results from the 2009 NYSDEC sampling event, representative soil samples were collected for laboratory analysis from previously unsampled properties/borings from the following depths:

- 0.0 to 0.2 feet bgs;
- 0.2 to 0.5 feet bgs;
- 0.5 to 1.0 feet bgs;
- 1.0 to 1.5 feet bgs;
- 1.5 to 2.0 feet bgs;
- 2.0 to 2.5 feet bgs; and
- 2.5 to 3.0 feet bgs.

Samples were analyzed for total mercury by USEPA SW-846 Method 7471A and total lead by USEPA SW-846 Method 6010B. Samples below 1.5 ft bgs were held for contingent analysis pending the analysis of the depth interval of 1.0 to 1.5 ft bgs.

In the event total mercury or lead concentrations were found above the NYSDEC 6 NYCRR Part 375 SCOs within the 1.0 to 1.5 ft bgs interval, the remaining samples from that boring were analyzed.

At existing NYSDEC soil boring locations where additional vertical delineation was required, samples were collected from the 0.5-ft depth interval immediately below the deepest sample up to a total depth of 3.0 feet bgs.

Soil samples collected for vertical delineation purposes at the NYSDEC locations were sampled for total mercury and/or total lead, based on the constituent that exceeded the applicable Part 375 SCO in the deepest sample interval from the 2009 sampling event. If no exceedances of Part 375 SCOs were observed in the deepest sampling interval from the 2009 event, then no additional vertical delineation samples were collected from that location and delineation was considered complete.

During the 2010 investigation activities, a total of 1,829 samples and 151 field duplicates were analyzed for total mercury and a total of 1,775 samples and 150 field duplicates were analyzed for lead. Samples were collected from a total of 552 borings and a total of 146 properties (142 properties within the Phase I Investigation Area and four properties outside the Phase I area requested by the NYSDEC).

As presented in the Phase I RI DSR, lead concentrations range from non-detect to 28,000 mg/kg. Lead was not detected in 51 of the samples analyzed. Mercury concentrations range from non-detect to 180 mg/kg. Mercury was not detected in 201 of the samples analyzed.

As part of the Phase I RI data evaluation, the soil borings were reviewed for the presence and characteristics of historic fill material (HFM). As presented in Appendix E of the Phase I RI DSR, the primary conclusions of the evaluation are as follows:

- HFM is ubiquitous across the Phase I RI area;
- Mercury and lead existed within HFM placed in areas surrounding the Site prior to the existence of the former battery plant;
- Based on the pattern of lead distribution in the Phase I investigation area soils, lead present in the area can be attributed to sources other than the former battery manufacturing operations; and
- Elevated mercury concentrations potentially related to Site activities can be distinguished from ubiquitous background concentrations in HFM through calculation of a background threshold value (BTV).

A summary of each of these findings is presented below.

### **Presence of Historic Fill Material**

Based on the characteristics of the soil sampled during the Phase I RI and the review of historical information, it was concluded that the soils in the top 3 feet in the Phase I investigation area contain materials meeting the NYSDEC's definition of historic fill<sup>1</sup>.

Debris consisting of coal, cinders, ash, construction and demolition debris (brick fragments and glass), vegetative organics, and occasionally shells, was identified in borings throughout the Phase I area. No native soils were encountered in the upper 3 feet of soil sampled during the RI.

### **Mercury**

A concentration gradient for mercury is apparent, with the highest concentrations generally found near the Site. However, low-level mercury concentrations for inorganic mercury salts are found at distance from the Site in the majority of properties sampled. This low-level mercury does not appear to be consistent with transport from the Site as it is found at distance from the Site and at depth; therefore, this low-level mercury is likely associated with HFM.

### **Lead**

Elevated lead concentrations are found randomly distributed throughout the Phase I investigation area and do not follow a concentration gradient indicative of airborne discharges from the former Duracell Inc. facility. Lead concentrations in soil increased with distance from the Site and decreased with depth. Elevated lead concentrations are often located on properties where debris was observed in the soil samples as further described in Appendix E of the Phase I RI DSR.

As presented in Appendix E of the Phase I RI DSR, several lines of evidence indicate that elevated lead concentrations were present in the HFM at the time of placement. The RI data establish a clear relationship between high lead concentrations and debris in the HFM, and while debris is found on properties throughout the period during which structures were built, the highest lead concentrations were generally found on properties developed between 1880 and 1920, which is well before manufacturing operations commenced at the former battery plant. This is based upon the fact that fill would have been placed on the property prior to the construction of buildings, the majority of which were built before battery manufacturing operations commenced, and because the lead distribution is not consistent with the pattern expected if impacts were due to historical air emissions from the facility. The data confirm that lead was present in the HFM at the time of placement and can be attributed to other sources.

### **Area of Concern within the HFM in the Phase I Area**

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<sup>1</sup> "non-indigenous or non-native material, historically deposited or disposed in the general area of, or on, a site to create useable land by filling water bodies, wetlands or topographic depressions, which is in no way connected with the subsequent operations at the location of the emplacement, and which was contaminated prior to emplacement. Historic fill may be solid waste including, but not limited to, coal ash, wood ash, municipal solid waste incinerator ash, construction and demolition debris, dredged sediments, railroad ballast, refuse and land clearing debris, which was used prior to October 10, 1962...."

Impacts to surface soils due to air emissions are generally greatest near the source and decrease with distance and with depth. As indicated by the Phase I investigation results, the concentration of mercury in soils decreases with depth and distance from the Site, as would be expected due to air emissions; however, the distribution of lead in soils is variable and not consistent with the distribution of mercury or with air emissions from the Site.

Therefore, based on review of the mercury concentration gradient and average mercury concentrations, there is potentially an area of concern<sup>2</sup> for soils located within approximately 400 ft to the south and east of the Site.

To identify the approximate location of this potential area of concern, a background<sup>3</sup> evaluation including calculation of a background threshold value (BTV) was conducted. The purpose of the BTV is to identify a level that can be used to delineate the extent of the contamination which may be Site-related based on the background level. As presented in Appendix E of the Phase I RI DSR, the BTV for mercury was calculated to be 4.8 mg/kg using approximately 10 percent of all of the RI samples (184 out of 1,829 mercury results) outside of the potential influence from historic site emissions. Only samples within the dark brown sand HFM (which is non-native) at locations more than 400 ft from the Site and below a depth of 1 foot were used to exclude potential historic surficial impacts from the former facility. Mercury concentrations exceeding the BTV are typically located adjacent to the former facility. The area primarily impacted is located to the south and east of the Site consistent with the prevailing wind direction.

Although a BTV was calculated for lead using the same data set used for the mercury BTV, no areas of concern were identified for lead because there is no discernable pattern in the distribution of the lead concentrations relative to the Site. In fact, lead concentrations increase with distance from the Site and the most elevated lead concentrations are found on properties with the greatest amount of debris. Lead is a common contaminant in HFM, is associated with incinerator wastes (coal, ash, and cinders) which were found to be mixed with soils in the Phase I investigation area, and was found to be a contaminant of HFM at the nearby GM facility (ARCADIS, 2009; BBL, 2006).

As noted in 6 NYCRR Part 375-2 for the Inactive Hazardous Waste Disposal Site Remedial Program, a remedial program for soil can consider site-specific background concentrations, including the location of a site in areas of historic fill, in the development of the remedy. Thus, the presence of HFM has been considered, along with other information, in the development of this IRMWP.

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<sup>2</sup> Per DER-10 (3.11[b]1), an area of concern is defined as "any existing or former location at a site where contaminants are known or suspected to have been discharged which is considered a source area. These include locations where contaminants were generated, manufactured, refined, transported, stored, handled, treated, disposed or where they have or may have migrated."

<sup>3</sup> Per DER-10 (1.3[b]69), "Site-specific background concentration means the concentration of an element, chemical or contaminant in an environmental medium present at a site that has been determined following an approved sampling and analysis plan to be either due to natural conditions or to be widespread regionally and not attributable to the site." "Background" is used in this report since the historic fill material is widespread in the off-Site properties in this portion of Sleepy Hollow and not attributable to the Duracell Site.

## 3.0 Description of Interim Remedial Measure Activities

This section of the work plan describes the general procedures for site preparation, soil removal, waste handling, waste characterization, off-site treatment/disposal, and restoration. The specific IRM procedures will be based on actual conditions of each property targeted for remediation and, as discussed in the following sections, will be addressed in IRMWP Addenda that will be prepared and submitted to the NYSDEC and NYSDOH for review and approval subsequent to the approval of this document. Because this is a densely populated residential area, care will be taken to protect the community from physical and environmental hazards during the remedial activities. Spanish speaking personnel shall be available throughout the remedial activities to interface with the community, which has a large Hispanic population.

### 3.1 IRMWP Addenda

IRMWP Addenda will be prepared to address the specific remediation requirements at each individual property or groupings of properties. An IRMWP Addendum will include the following programmatic information:

- Site preparation procedures;
- Schedule of work;
- Site security;
- Site features that require demolition, removal, and/or temporary re-location;
- The general soil removal plan including a description of the potential methodologies to be used during removal (i.e., hand dig, small portable excavator, vacuum-assisted excavation, etc.);
- Proposed dust control measures and action levels;
- Proposed methods for implementing NYSDEC DER-31;
- Soil handling, staging, transportation, and disposal, including traffic control measures, truck routes, and proposed soil staging and handling areas in the vicinity; and
- Proposed property restoration program. Program elements will be identified, including the minimum restoration requirements (e.g., soil placement, vegetation or other surface cover, etc.) to allow for flexibility to incorporate potential input from property owners.

Property specific, or zone specific, IRMWP Addenda will be prepared. These Addenda will include the following:

- A drawing showing each individual property or zone grouping and existing major structures (i.e., buildings, pavement, fencing, etc);
- Graphical representation of soil data for each lot/area showing the location of sample, depth of sample, and concentration of mercury;

- A drawing detailing the general sequence of work within each individual property or zone grouping including the location of temporary erosion controls, security fencing, Community Air Monitoring Plan (CAMP) monitoring locations, and homeowner access routes;
- Graphical representation of areas proposed for soil removal and the depth of removal. In addition, site features that require demolition, removal, or temporary re-location in order to implement the removal action will be identified;
- Graphical representation of proposed confirmation sample locations; and
- Graphical representation of proposed restoration measures.

In addition, an indoor dust evaluation will be discussed with the NYSDEC after the remediation is complete. IRM measures will be implemented as soon as possible after receiving approval of the IRMWP Addenda from the NYSDEC and NYSDOH.

### 3.2 Homeowner Agreements

Implementation of IRM activities will not be implemented on a given property until a written agreement has been obtained from the owner of the particular property. Following NYSDEC and NYSDOH approval, Gillette will meet with the property owner to discuss and present the property-specific IRM plans and schedule, and obtain owner approval.

Efforts will be made to limit the disruption to the local community and capture efficiencies of scale. It is anticipated that IRMs would be implemented after obtaining owner approval for a minimum percentage of the properties requiring remediation. The intent is that while those properties are being remediated, owner approval could be obtained for the remaining properties and the IRMs could be completed with a minimum of field mobilizations. In addition, certain properties may be grouped due to their proximity and access logistics (i.e., certain target properties may be more readily accessed through adjacent properties).

### 3.3 Pre-Mobilization Activities

In general, pre-mobilization activities will include the following:

- **Initial Inspection:** An initial site inspection will be conducted by a representative of the remediation contractor and Engineer-of-Record to evaluate the access to each property, evaluate potential structural concerns, and identify other property-specific concerns that may impact IRM implementation. Note that additional professionals may be employed depending on specific property concerns. For example, an arborist may be retained to evaluate the potential impact of the planned IRM activities on trees to remain.
- **Utility Mark-out:** Prior to conducting the intrusive activities described below, the proposed locations of subsurface utilities will be marked in the field. A utility stakeout request will be made to DigSafelyNewYork, Inc. by calling **1-800-962-7962**. It may be necessary to call **1-315-437-7394** when calling from outside of New York State. A list of the specific utility companies and contact information for the utility stakeout request in the Village of Sleepy Hollow can be obtained from <http://www.digsafelynewyork.com/MasterList/default.asp>. Dig Safely New York will be contacted at least three (3) full working days prior to mobilization to the site to request that the local utility companies (i.e., gas, electric, telephone, cable, water, sewer, etc.) mark out and provide clearance for their respective utilities. If it is determined that the Dig Safely utility clearance is insufficient in clearly defining the locations of utilities, an

independent utility locator will be used.

Pending visual observations completed during the precondition survey (discussed below) and field reconnaissance and/or results of utility mark-outs/clearance, a surface geophysical survey will be conducted in accessible areas of the site using electromagnetic (EM) induction and ground penetrating radar (GPR) techniques to attempt to identify the approximate locations and limits of potential subsurface features including underground storage tanks, utilities, etc.

- **Permit/Approvals:** Permits/approvals may be required for IRM implementation, including individual Village of Sleepy Hollow Building Permits and utility purveyor coordination/approvals. Required permits/approvals will be evaluated at the time of IRMWPA Addenda submittal and obtained prior to mobilization.
- **Precondition Inspection:** A precondition inspection will be conducted immediately prior to mobilization to a property to document the conditions of the property prior to mobilization and IRM implementation. The precondition inspection will include photographic documentation of each property.

### 3.4 Site Preparation

In general, site preparation will include the following:

- **Mobilization:** Mobilization of field equipment and personnel.
- **Installation of Temporary Facilities:** Includes establishing a centralized field office, temporary sanitary facilities, construction staging area, and waste staging area (if used).
- **Work Zone Delineation:** Includes establishing a work area perimeter around the proposed excavation. If soils are staged, a work zone will be established around the secure staging area. The work area perimeter will be marked off using suitable methods (e.g., temporary fencing, jersey barriers, safety cones or caution tape) to discourage unauthorized access to the area during remediation and secure the work area.
- **Decontamination Set-up:** Includes establishing decontamination stations for equipment and personnel decontamination in accordance with the site-specific health and safety plan (HASP).
- **Installation of Temporary Controls:** Includes installation of soil and sediment erosion controls, stormwater control measures, dewatering systems (if necessary), and air monitoring systems and air emission controls. Temporary controls are further discussed in Section 4.
- **Clearing, Grubbing, and Demolition:** The work area will be cleared of materials, debris, or miscellaneous items, as necessary, to facilitate IRM implementation. Plants and trees may be removed and staged for disposal. Small structures may be demolished or temporarily relocated.

### 3.5 Soil Removal

The remedial activities will be based on implementation of the site-specific soil cleanup objective of 4.8 mg/kg for inorganic mercury. As further discussed in the NYSDEC-approved Phase I RI DSR and the Questions and Answers Fact Sheet (NYSDEC and NYSDOH, 2011), because lead present in area soils can be attributable to sources other than the former battery manufacturing operations,

remediation of properties in the area will not be conducted based on the presence of elevated lead levels.

As presented in the *Technical Memorandum – Development of Site-Specific Soil Cleanup Objective* (Gillette/AECOM/ENVIRON, 2011), this clean-up criteria approach, which is consistent with 6 NYCRR Part 375, NYSDEC CP-51, and NYSDEC DER-10, will not compromise protection of human health and the environment. It also will reduce the impact to plants, trees and wildlife habitat, and unnecessary disruption to property owners and businesses in the Village of Sleepy Hollow.

The IRMWP Addenda will identify the areas and depths targeted for removal on the off-Site properties, as necessary. The following sections identify the excavation strategy to be implemented based on the SSSCO for inorganic mercury.

### 3.5.1 Excavation Approach

The extent of remediation on each off-Site residential property will be based on the data collected by both the NYSDEC in 2009 and by AECOM on behalf of Gillette as part of the Phase I RI in 2010 (AECOM, 2011a). The excavation approach is consistent with the NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation and the CP-51 Soil Cleanup Guidance.

In general, sections of residential properties outside of potential excluded areas (as defined below) with mercury concentrations exceeding 4.8 mg/kg (or ppm) will be excavated. For determining potential excavation areas exceeding the remedial goal, grids within each property will be established based on the available data so as not to exceed 900 square ft (e.g., 30 ft by 30 ft), as required by DER-10. As discussed below in Section 3.5.3, confirmation samples will be collected and analyzed for mercury in accordance with Section 5.4 of DER-10 to determine whether the remedial goal has been achieved or whether further remediation may be required.

Soils immediately adjacent to or beneath residential structures including homes and garages as well as public sidewalks and roads will not be excavated. In addition, other physical characteristics of the properties will be evaluated on a property-by-property basis, along with homeowner input, to determine areas that may be excluded from the excavations. These potential exclusions include, but are not limited to: mature trees (e.g., trees greater than 4-inch diameter at breast height [dbh] or greater than approximately 15 ft in height), impervious surfaces (e.g., paving, concrete decks at grade), and areas or depths that could undermine permanent structures and retaining walls.

Soils exceeding the SSSCO beneath temporary structures such as sheds will be excavated following demolition or temporary relocation. Hand excavation and/or vacuum trucks will be used for soils that exceed the SSSCO near structures, beneath above-grade decks, and within the drip line of mature trees that would remain (see Section 3.5.2 below). Arborists will be consulted during development of the IRMWP Addenda to assist in determining whether partial excavations can be completed without threatening the health and stability of the trees that would remain.

Details on the excavations (e.g., anticipated footprints and depths of removals based on available data) for each residential property will be presented in the IRMWP Addenda.

### 3.5.2 Material Removal and Handling

Depending on access constraints and the proximity of excavation areas to permanent site structures, various removal means and methods may be used. The selection of removal means and methods may also be determined by the number of contiguous properties where removal is required and can be scheduled concurrently.

Potential means and methods to be considered may include:

- Hand dig (to be considered near utilities, permanent structure support walls, or areas with limited access);
- Portable excavator;
- Small backhoe or similar; and
- Vacuum truck.

The means and methods will be further refined in the IRMWP Addendum; however, means and methods may be revised to address specific site conditions following the initial inspection (refer to Section 3.3) and/or encountered during the work.

The excavated soil will be temporarily staged (i.e., in covered roll-offs) or directly loaded into lined and covered haul trucks. The use of stockpiles will be avoided. The staging area(s) and truck routing will be identified in the IRMWP Addendum. Waste characterization sampling will be conducted as described in Section 3.7.

### 3.5.3 Confirmation Sampling

Confirmation samples will be collected at the minimum frequencies identified in DER-10, which specifies one sidewall sample per 30 feet of perimeter of excavation, unless the excavation limit is adjacent to an excavation area on an adjacent property, and one bottom sample per 900 square feet of excavated area. In order to minimize the timeframe of IRM activities on any one property and expedite achieving final site restoration, confirmation samples may be submitted for expedited turnaround time.

The IRMWP Addenda will identify proposed locations for confirmation sampling to meet the requirements of DER-10. Samples will be collected in accordance with the site FSP and QAPP provided in the Phase I RIWP.

## 3.6 Backfilling and Site Restoration

After excavation and confirmation sampling, the excavation areas will be backfilled with imported soil consistent with the requirements in 6 NYCRR Part 375-6.7(d) and DER-10, paragraph 5.4 (e), which state that soil used as backfill shall:

- Comply with applicable soil cleanup objectives;
- Be free of extraneous debris or solid waste;

- Be recognizable soil or other unregulated materials set forth in 6 NYCRR Part 360 and material for which NYSDEC has issued a beneficial use determination, which comply with the requirements of DER-10;
- Be sampled at the frequency established in DER-10 and the data provided to the NYSDEC prior to use (per DER-10: soil from a virgin mine/pit requires at least one round of sample results; soil from non-virgin sources requires sampling at the established minimum frequencies; and imported virgin stone from a permitted mine/quarry does not require sample results);
- Have its source documented and provided to NYSDEC prior to use; and
- Have its transportation to the site documented using bills of lading that are provided to the NYSDEC (included in the construction completion report).

Furthermore, backfill soils will have concentrations less than the allowable constituent levels for imported fill or soil, as specified in Appendix 5 of DER-10 (NYSDEC, 2010b), which are the Part 375 SCOs for total mercury and lead.

Excavation areas will only remain open for the minimum period of time necessary to ensure that remediation goals have been achieved. Once confirmation sampling is completed and satisfactory results received, the excavations will be backfilled as soon as practical.

Properties will be restored to pre-remediation conditions with respect to topography, hydrology, and surface cover (i.e., hard cover or vegetation) to the greatest extent practicable. Additional, property-specific details for these restorations may be provided in the IRMW P Addendum. However, as discussed in Section 3.1, it is anticipated that the IRMW P Addendum will identify the minimum restoration requirements (e.g., soil placement, vegetation or other surface cover, etc.) to allow for flexibility to incorporate potential input from property owners, which would occur after the IRMW P Addendum are approved by the NYSDEC.

The selected contractor will be responsible for providing surveys prepared by a New York State-Licensed Surveyor to document pre-excavation, post-excavation, and post-restoration grades to document excavation depths and restoration of the property to pre-existing grades.

### 3.7 Waste Characterization and Treatment/Disposal

All waste streams will be managed in accordance with applicable federal and state regulations.

It is anticipated that four general types of waste material will be generated by the IRM:

- **Site Clearing Materials** - this material will consist of organic materials such as brush, trees, or other plants cleared from areas to be excavated.
- **Construction and Demolition Debris** - Includes debris from potential demolition of small structures.
- **Soils** - Excavation at the properties will generate soil potentially impacted with mercury and/or lead.
- **Water Generated During Construction** – This waste stream includes waters generated during construction, including decontamination, dewatering, or collected from potential staging areas.

Sampling and analyses of the materials will be conducted in conformance with applicable regulatory requirements for waste characterization and the requirements of the permitted off-site treatment/disposal and/or recycling facility(ies). Other physical characteristics of the material will be observed and documented, including physical appearance and odor.

The materials will be removed after waste characterization test results are available and the material is accepted for shipment to the selected treatment, disposal or recycling facility. As an alternative to off-site treatment/disposal, water generated during construction may be treated via a temporary water treatment system located in a centralized location followed by discharge to the Publicly Owned Treatment Works (POTW).

Truck traffic will be kept to a minimum and follow routes outlined in the approved IRMWP Addenda.

### **3.8 Demobilization**

Prior to demobilization, equipment that comes into contact with waste materials (excavator arm and bucket, vacuum hose, hand tools, etc.) will be decontaminated prior to leaving the work area. Efforts will be made to minimize the amount of decon water generated (i.e., dry decontamination methods). Water generated from equipment decontamination will be collected and managed in accordance with Section 3.7. Waste characterization samples will be collected and analyzed prior to off-site treatment/disposal. Materials used to mark out the work areas, remaining temporary controls (erosion controls, air monitoring and control equipment), decontamination stations, as well as any remaining equipment, will be removed once the impacted soil has been transported off-site and the backfilling/restoration activities are complete.

Immediately after restoration and demobilization is complete, a post-condition inspection will be conducted to document the conditions of off-Site properties following IRM implementation. The post-condition inspection will include photographic documentation of each property.

## 4.0 Temporary Controls

Temporary controls may be implemented during IRM implementation, and are as described below.

### 4.1 Soil and Sediment Erosion Control

Soil and sediment erosion controls will be implemented to prevent transport of contaminated soils during excavation activities by stormwater or other runoff events. The temporary controls will include placement of silt fences or straw bales around the boundaries of excavation areas to prevent (1) contaminated soils from leaving an excavation, (2) prevent contaminated soils on adjacent properties from entering a cleaned excavation area, and (3) prevent clean soils from adjacent properties from entering a contaminated area. These controls may be integrated into other site safety controls utilized during IRM implementation.

### 4.2 Stormwater Management

In the event of a rain event or similar to generate surficial flow, stormwater management may be necessary. Soil and Sediment Erosion Control measures as described above are expected to be sufficient to prevent transport of impacted soils into stormwater runoff, however, additional stormwater management measures may be implemented to limit the effect of stormwater on IRM implementation. Diversion berms may be constructed to limit the amount of runoff entering the excavation area. If stormwater does not disperse or infiltrate naturally in a timely manner, then the excavation area may be dewatered as described below.

### 4.3 Dewatering

Based on the expected depth of excavation and observations made during prior field activities, groundwater infiltration into the excavations is considered unlikely. If groundwater infiltration is encountered, the excavation will be dewatered (if necessary) by pumping at a sufficient rate to facilitate removal of potentially impacted waters. As discussed above, dewatering may also be employed to remove stormwater from an excavation if infiltration is not occurring in a timely manner. Water generated from dewatering will be transferred to a portable fractionation tank where waste characterization samples would be collected and analyzed prior to off-site treatment/disposal. As an alternative to off-site treatment/disposal, water generated during construction may be treated via a temporary water treatment system located in a centralized location followed by discharge to the publicly-owned treatment works (POTW).

### 4.4 Air Monitoring and Controls

The work area will be monitored for dust, odor, and vapors as specified in the HASP (Appendix A) and CAMP (Appendix B). During all activities that may generate dust, which include but are not limited to site preparation, soil excavation, soil handling (including stockpiling, loading, unloading), fugitive dust suppression techniques will be employed. Control measures may include:

- Wetting equipment and excavation faces (for excavations) and structures or hard surfaces during demolition;

- Spraying water on buckets during excavation and loading/unloading;
- Hauling waste materials in properly tarped or watertight containers; and
- Covering excavated areas (e.g., with geotextile fabric to minimize dust generation and avoid accumulation of water) and staging areas (e.g., with polyethylene sheeting) when active excavation or loading/unloading is not occurring.

Dust control measures will also be employed during movement and placement of imported fill to control the generation of nuisance dust.

#### **4.5 Work Area Security**

If an excavation needs to be left open for any length of time, the excavated area will be cordoned off with temporary construction fencing. If the area is asphalt, cones and caution tape and or other movable barriers will be employed.

#### **4.6 Noise**

Work activity scheduling will comply with local noise ordinances, which specify permitted noises including construction work between the hours of 8:00 am and 7:00 pm weekdays. No construction shall be permitted on Saturday or Sunday unless permission is first obtained from the Village of Sleepy Hollow, the Police Department and Department of Fire and Life Safety.

## 5.0 Health and Safety/Air Monitoring Plans

Health and safety and air monitoring measures will be implemented during the course of the field activities to address hazards specific to the IRM and protect the community and remediation personnel.

The health and safety of the community will be addressed through setting up work zones (per Section 3.4) where only authorized personnel will be permitted to enter, conducting community air monitoring (as discussed below in this section), and through work practices that minimize, to the extent practical, the migration of constituents (in air, water, or land) from the work area. These work practices include proactive implementation of soil erosion and sediment control measures, stormwater management measures, air emissions control measures, equipment and personnel decontamination, and waste management [including handling, staging (if used), transportation, and treatment/disposal].

Health and Safety measures to be implemented for the protection of the selected contractor(s) are described in the conceptual health and safety plan provided in Appendix A. The HASP will be updated once the implementing contractor is selected through a competitive bidding process; however, the HASP provides information regarding general health and safety concerns and general site hazards at the site, including exclusion zones and other measures undertaken to prevent exposure of residents and property owners to risks associated with the IRM. The HASP includes procedures for air monitoring within the work zone during ground intrusive activities. In addition to work zone air monitoring, community air monitoring will also be conducted during ground intrusive activities associated with the IRM implementation to continuously monitor the concentration of airborne constituents at the downwind perimeter of the work area. A site-specific CAMP (included as Appendix B) has been prepared which meets the minimum requirements of the NYSDOH's Generic CAMP (also included in Appendix B). Due to the proximity of the work areas to residences it is anticipated that in addition to upwind and downwind monitoring required in the NYSDOH CAMP, monitoring stations would also be situated between the work area and nearby residences (including the residence on the same property as the work area and nearby adjacent residences). Note that in some instances, locating stations between the work area and nearby residences may adequately cover the potential upwind and downwind directions and preclude the need for separate upwind and downwind stations. Additional property-specific air monitoring procedures may be included in the IRMWPA Addenda (e.g., air monitoring station layout). Work zone and CAMP air monitoring readings will be recorded in a logbook and will be available for review by the NYSDEC and NYSDOH.

Air monitoring action levels and corresponding response actions are identified in the HASP (Appendix A) and CAMP (Appendix B).

## **6.0 Contingency Plans**

This section addresses contingencies that may be needed due to the nature of the work.

### **6.1 Unstable Conditions**

If the removal activities are observed to be causing an unstable or unsafe situation with respect to adjacent permanent or temporary structures, then removal activities will be halted and an engineering evaluation conducted to determine if the IRM can be safely implemented. If stabilization of the structure is required and temporary stabilization measures can be employed that are consistent with the intent of the scope of the IRM, then the structure will be stabilized and material removal will resume. If temporary stabilization measures cannot be employed, alternative measures will be developed and submitted to the NYSDEC for approval.

### **6.2 Airborne Constituents**

Air monitoring will be conducted during IRM implementation in accordance with the procedures included in Section 4 and the CAMP. As part of the CAMP, multiple action levels will be implemented, and if the levels of airborne constituents exceed an action level, then mitigation measures will be implemented. Mitigation measures may range from suppression measures to a work stoppage in response to exceedances of increasing action levels (refer to Section 4.4).

### **6.3 Severe Weather**

If severe weather is encountered that poses a hazard to workers or the environment, the IRM activities will be suspended until it is deemed safe to resume work. The contractor will be required to take reasonable measures to secure the site, protect the work and prevent releases which may include covering/securing the work area and stockpiles.

## 7.0 Oversight and Documentation

The field activities will be observed and documented by an engineer or other qualified environmental professional. The construction oversight personnel will observe and document the field activities in a field notebook. A photographic log of field activities will be maintained throughout the course of the IRM.

### 7.1 Construction Completion Report

A Construction Completion Report (CCR) documenting the IRM will be prepared in accordance with DER-10 and submitted to the NYSDEC. The report will describe the activities completed in accordance with the approved IRMWP and IRMWP Addenda, in addition to providing the data to support the construction activities completed, including:

- The results from confirmation samples;
- Surveys prepared to document excavation grades, confirmation sample locations and final grades showing restoration of the property to pre-existing grades;
- Daily air monitoring and CAMP logs;
- Waste characterization results;
- Copies of bills of lading and/or waste manifests will also be maintained to document the total volume of waste removed and transported for off-site treatment/disposal;
- Backfill sample results;
- Copies of bills of lading for soil imported for backfilling; and
- Representative photographs.

The CCR will be signed and sealed by a New York State Registered Professional Engineer.

### 7.2 Progress Reporting

Written progress reports will be provided to individuals identified in Subparagraph XI.A.1 of the Order by the 10<sup>th</sup> day of each month after approval of the IRMWP and until approval of the CCR. These reports will include a description of actions undertaken during the reporting period and activities anticipated to occur during the upcoming reporting period; approved modifications to this IRMWP and schedule; results of sampling, tests, and other data generated during the reporting period; and description of activities undertaken in support of the Citizen Participation Plan during the reporting period and planned for the upcoming reporting period. The name of the Project Manager will be included in each progress report.

## 8.0 Schedule

Implementation of individual IRMs will be initiated upon NYSDEC approval of this document, the IRMWPA Addendum (to be submitted following state approval of this document), and authorization by each individual property owner. Tentatively, the Site goal for calendar year 2011 is to initiate preparation of IRMWPA Addenda, pre-mobilization activities, and homeowner coordination for off-Site priority properties directed by the NYSDEC.

## 9.0 References

AECOM, 2010. Phase I Remedial Investigation Work Plan, Duracell Inc. Site, NYSDEC Site Registry No. 360011. Prepared for The Gillette Company, August 2010.

AECOM, 2011a. Phase I Data Summary Report, Duracell Inc. Site, NYSDEC Site Registry No. 360011. Prepared for The Gillette Company, April 2011.

AECOM, 2011b. Interim Remedial Measure Work Plan, Duracell Inc. Site, NYSDEC Site Registry No. 360011. Prepared for The Gillette Company, April 2011.

AECOM, 2011c. Citizen Participation Plan, Duracell Inc. Site. Prepared for The Gillette Company, April 2011.

ARCADIS, 2009. Supplemental Soil Investigation of Proposed East Parcel Donation Land, April 2009.

Blasland, Bouck & Lee, Inc., an ARCADIS Company (BBL), 2006. Preliminary Draft Remedial Investigation Report for Brownfield Cleanup Agreements Former General Motors Assembly Plant Site, Sleepy Hollow, New York, December 2006.

The Gillette Company/AECOM/ENVIRON, 2011. Technical Memorandum to NYSDEC – Development of Site-Specific Soil Cleanup Objective, Duracell Inc. Site. Prepared by The Gillette Company, AECOM (Lucy Frasier, PhD and Michael L. Spera, PE), and ENVIRON (Rosalind Schoof, PhD), August 1, 2011.

NYSDEC, 1988. Order on Consent and Administrative Settlement, Index No. W3-0160-8711, Site No. 360011, between the New York State Department of Environmental Conservation and Duracell, 1988.

NYSDEC, 2006. 6 NYCRR Part 375 – Environmental Remediation Programs, 2006.

NYSDEC, 2010. Order on Consent and Administrative Settlement, Index No. W3-1145-09-11, Site No. 360011, between the New York State Department of Environmental Conservation and the Gillette Company, January 1, 2010.

NYSDEC, 2010b. DER-10 – Technical Guidance for Site Investigation and Remediation, May 2010.

NYSDEC, 2010c. CP-51 Soil Cleanup Guidance, Final Commissioner Policy, October 21, 2010.

NYSDEC and NYSDOH, 2011. Questions and Answer Fact Sheet, Duracell Inc. Site, October 2011.

J:\Incl\_Service\Project Files\Procter & Gamble\Sleepy Hollow\GIS\Projects\BrownCaldwell\2010\_07\Figure 1-1 Site Location Map.mxd



**AECOM**

DURACELL INC. SITE  
60 ELM STREET  
VILLAGE OF SLEEPY HOLLOW,  
NEW YORK

SITE LOCATION MAP

DATE 07/2010

DRWN. H.K.M.

FIGURE 1-1



## **Appendix A**

### **Health and Safety Plan (HASP)**



Environment

Prepared for:  
The Gillette Company  
Bethel, CT

Prepared by:  
AECOM  
Chestnut Ridge, NY  
60157944  
April 4, 2011

# Health and Safety Plan (HASP)

**Duracell Inc. Site**

**60 Elm Street**

**Village of Sleepy Hollow, New York**

**NYSDEC Site Registration No. 360011**

***Health and Safety Plan Expiration Date:*** Pending Final Approval of the Document



Environment

Prepared for:  
The Gillette Company  
Bethel, CT

Prepared by:  
AECOM  
Chestnut Ridge, NY  
60157944  
April 4, 2011

## Health and Safety Plan Approval

This Health and Safety Plan (HASP) was prepared for employees performing a specific, limited scope of work. It was prepared based on the best available information regarding the physical and chemical hazards known or suspected to be present on the project site. While it is not possible to discover, evaluate, and protect in advance against all possible hazards, which may be encountered during the completion of this project, adherence to the requirements of the HASP will significantly reduce the potential for occupational injury.

By signing below, I acknowledge that I have reviewed and hereby approve the HASP for the Duracell Inc. Site, Sleepy Hollow, New York. This HASP has been written for the exclusive use of AECOM, its employees, and subcontractors. The plan is written for specified site conditions, dates, and personnel, and must be amended if these conditions change.

**Written by:**

\_\_\_\_\_  
Scott T. McDonough  
Environmental Engineer  
(518) 951-2200

\_\_\_\_\_  
Date

**Approved by:**

\_\_\_\_\_  
Philip Platcow, CIH  
Regional Safety Health & Safety Environment Manager  
(617) 899-5403

\_\_\_\_\_  
Date

**Concurrence by:**

\_\_\_\_\_  
Steve Kostage  
Project Manager  
(978) 337-1519

\_\_\_\_\_  
Date

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## 1.0 Introduction

This Health and Safety Plan (HASP) (including Attachments A-E) provides a general description of the levels of personal protection and safe operating guidelines expected of each employee or subcontractor associated with the environmental services being conducted at the Duracell Inc. Site (Site), located at 60 Elm Street (and surrounding properties), Village of Sleepy Hollow, Westchester County, New York, New York State Department of Environmental Conservation (NYSDEC) Registry No. 360011. Note that in addition to acknowledging this HASP, each subcontractor is required to produce their own HASP.

This HASP is part of the Remedial Investigation Work Plan (RIWP) that has been prepared pursuant to the Order on Consent and Administrative Settlement, Index No. W3-1145-09-11, Site No. 360011 (Order) between the Gillette Company Inc. (Gillette) and the NYSDEC, effective January 1, 2010. This HASP also identifies chemical and physical hazards known to be associated with the AECOM-managed activities addressed in this document. The RIWP has been prepared by AECOM on behalf of Gillette.

The Order calls for a Remedial Investigation (RI) and Interim Remedial Measures (IRM) to be implemented at the Site. The conceptual IRM is described in a companion document titled the "Interim Remedial Measures Work Plan, Duracell Inc. Site, Sleepy Hollow, New York, NYSDEC Site Registry No. 360011", (AECOM, August 2010), which is referred, hereinafter, as the IRMWHP. HASP Supplements will be generated as necessary to address any additional activities or changes in site conditions, which may occur during field operations.

### 1.1 General

The provisions of this HASP are mandatory for all AECOM personnel engaged in fieldwork associated with the environmental services being conducted at the subject site. A copy of this HASP, any applicable HASP Supplements and the U.S. Operations Safety, Health, and Environmental (SH&E) Manual shall be maintained on-site and available for review at all times. Record keeping will be maintained in accordance with this HASP and the applicable Standard Operating Procedures (SOPs). In the event of a conflict between this HASP, the SOPs and federal, state, and local regulations, workers shall follow the most stringent/protective requirements.

### 1.2 Policy Statement

It is the policy of AECOM to provide a safe and healthy work environment for all of its employees. AECOM considers no phase of operations or administration is of greater importance than injury and illness prevention. Safety takes precedence over expediency or shortcuts. AECOM believes that every effort and planning tool should be used to attempt to identify and avoid incidents of all types. We will take every reasonable step to reduce the possibility of injury, illness, or incident. This policy is detailed in SH&E 001, Safety, Health, and Environmental Policy Statement.

The practices and procedures presented in this HASP and any supplemental documents associated with this HASP are binding on all AECOM employees while engaged in the subject work. In addition, all site visitors shall abide by these procedures as the minimum acceptable standard for the work site. Operational changes to this HASP and supplements that could affect the health or safety of personnel,

the community, or the environment will not be made without prior approval of the AECOM Project Manager (PM) and the assigned AECOM Safety Professional.

### 1.3 References

This HASP conforms to the regulatory requirements and guidelines established in the following documents:

- Title 29, Part 1910 of the Code of Federal Regulations (29 CFR 1910), Occupational Safety and Health Standards (with special attention to Section 120, Hazardous Waste Operations and Emergency Response).
- Title 29, Part 1926 of the Code of Federal Regulations (29 CFR 1926), Safety and Health Regulations for Construction.
- National Institute for Occupational Safety and Health (NIOSH)/OSHA/U.S. Coast Guard (USCG)/EPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Publication No. 85-115, 1985.

The requirements in this HASP also conform to AECOM's Corporate SH&E Program requirements as specified in the U.S. Operations SH&E Manual.

## 2.0 Site Information and Scope of Work

AECOM will conduct environmental services at the Duracell Inc. Site. Work will be performed in accordance with the applicable Work Plans developed for the Site. Deviations from the listed SOW will require that a Safety Professional review and changes made to this HASP, to ensure adequate protection of personnel and other property.

The following is a summary of relevant data concerning Site, and the work procedures to be performed. The Work Plan prepared by AECOM as a companion document to this HASP provides significantly greater details concerning both site history and planned work operations.

### 2.1 Site Information

This section provides a general description and historical information associated with the site.

#### 2.1.1 General Description

The Site is located at 60 Elm Street in the Village of Sleepy Hollow, Westchester County, New York and occupies 1.64 acres on tax parcel No. 15-3-3A. The Site is the location of former Duracell manufacturing operations.

The Site is nearly surrounded by a densely-spaced residential neighborhood. The Site is bordered on the north by Elm Street and on the west by Andrews Lane beyond which are located a future Senior Center and Barnhart Park, respectively. The south and east sides of the Site are directly bordered by residential properties. One block south of the Site is a mixed-use neighborhood of commercial and residential properties.

The Site is currently owned by the Village of Sleepy Hollow which has developed it into a parking lot. The current Site configuration consists of asphalt-paved parking area equipped with curbs, landscaped islands, and lighting. The exterior portions of the Site consist of concrete sidewalks and/or grass and landscaped areas. A chain-link fence extends along the eastern and southern property boundaries to separate the adjacent residential properties.

#### 2.1.2 Site Background/History

The Site was operated as a battery manufacturing facility from 1945 until operations ceased in 1984. The facility was originally operated by the P.R. Mallory Company which later became Duracell in 1979. The former manufacturing facility footprint encompassed nearly the entire present day tax parcel. Two employee parking areas for the facility occupied portions of the properties located immediately across Elm Street and Andrews Lane, including the future Senior Center and part of the present day Barnhart Park, respectively. The facility was decommissioned and demolished in 1990 and 1991.

#### 2.1.3 Previous Investigations

In 1988, Duracell entered into an Order on Consent and Administrative Settlement, Index No. W3-0160-8711, Site No. 360011 (1988 Order), with the DEC to complete an investigation and remediation of on- and off-Site soils. Airborne discharges from former manufacturing facility operations (e.g., exhaust from air handling units, operation and maintenance of cyclones and bag houses used for particulate collection) in the form of mercuric oxide (inorganic salts) were cited as the source of the

contamination. An environmental investigation was conducted in 1989 which identified primarily mercury impacted soils on the Site and adjacent properties. The remediation included the excavation and removal of soils on- and off-Site with concentrations of mercury exceeding the Site-specific risk-based remedial goal of 35-45 mg/kg that were approved by the DEC at the time.

In 1990, approximately 2,100 cubic yards (cy) of mercury-impacted soils were removed from the Site. Subsequent removals of more than 600 cy of impacted soils were completed on eight adjacent residential properties in 1990 and 1991 and, in 1993, 1,600 cy of impacted soils were removed from the former Duracell parking area across Andrews Lane. As per the 1988 Order with the DEC, on-Site and off-Site impacted soils were remediated to the risk-based remedial goals established at that time for the site. Accordingly, in 1994, the DEC removed the Site from the NYS Registry of Inactive Hazardous Waste Disposal Sites.

In 2008 a soil sample was collected from a residential property adjacent to and south of the Site and analyzed for metals, as part of a proposed real estate transaction. Mercury was detected in this sample in excess of the current SCO for inorganic mercury salts. The findings from the residential sampling were provided to the DEC and the DOH, which prompted the DEC to initiate a limited residential soil investigation and characterization of background. The DEC investigation was performed in May 2009 in which 37 private properties and two Village-owned properties, including the Barnhart Park located across Andrews Lane from the Site, were sampled. Soil samples were analyzed for total mercury and lead. Thirty-six (36) of the 39 nearby properties displayed concentrations of total mercury in excess of the New York State 6 NYCRR Part 375 SCO. Thirty-one (31) of the 39 nearby properties displayed elevated concentrations of total lead in excess of the New York State 6 NYCRR Part 375 SCO.

## 2.2 Scope of Work

The primary objectives of the Phase I RI will be to provide:

- Horizontal and vertical delineation of potentially contaminated off-Site soils; and
- Initial characterization of sediments in catch basins.

The IRM field activities that may be undertaken at the Site, which will be covered in this HASP, may consist of the following:

- Removal of mercury in soils to the site-specific supplemental soil cleanup objectives as discussed in Section 3 and Appendix A of this IRM Work Plan.

### 2.2.1 Remedial Investigation Activities

Field activities that may be undertaken at the Site and surrounding properties, during the current and potential future RI phases, which will be covered in this HASP, may consist of the following:

- Geo-Physical mark out with electromagnetic induction and ground penetrating radar.
- Collection of surficial soil samples by manual methods.
- Soil borings drilled by direct push (GeoProbe™).
- Soil borings drilled by hollow stem auger (HSA) methods.
- Drilling and installation of monitoring wells by hollow stem auger (HSA) methods.

- Collection of sediment samples from catch basins, manholes, ponds, or other off-site drainage features. **Note: there will be NO confined space entry into sewer structures for the purpose of sample collection.** Note that if there is any change of this position, RSM, Philip Platcow must be informed prior to any entry. He can be reached at (617) 899-5403.
- Collection of groundwater and surface water samples.
- Hydrogeologic testing, including water level measurements and in-situ hydraulic conductivity tests.
- Soil excavations and/or test pits.
- Field reconnaissance and surveying.

### 2.2.2 IRM Activities

The IRM field activities that may be undertaken at the Site, which will be covered in this HASP, may consist of the following:

- Observation of soil IRM construction activities that will potentially include soil excavation, dewatering, site restoration, and landscaping.
- Observation of waste soil and water handling and treatment activities.

### 2.2.3 Additional Work Operations

The following additional tasks will also be performed as necessary in support of planned site activities:

#### 2.2.3.1 Mobilization/Demobilization

Mobilization and demobilization represent limited pre and post-task activities. These activities include driving to and from the site; initial site preparations, such as trailer and toilet facilities setup; and post-work activities, such as removing files and office equipment and general housekeeping.

#### 2.2.3.2 Equipment Decontamination

AECOM and subcontractor personnel will perform decontamination of equipment used to perform work within controlled work areas. Decontamination procedures are specified in Section 7.3.

#### 2.2.3.3 Investigative-Derived Waste Management

Investigative-Derived Waste (IDW) will be collected and categorized as non-hazardous or hazardous. Potentially hazardous IDW (purge water, and decontamination fluids, and soil cuttings [if any]) will be tested and disposed of within 90 calendar days of completing the field activities. Potentially hazardous IDW waste will be staged at a location to be determined, and then delivered to an IDW storage facility for processing. Non-hazardous IDW (normal trash) will be disposed of in a timely fashion during fieldwork.

## **3.0 Project Health and Safety Organization**

### **3.1 Project Manager**

The Project Manager (PM) has overall management authority and responsibility for all site operations, including safety. The specific safety responsibilities for the PM are listed in Section 4.2 of SH&E 301, Project SH&E Planning Documentation. The PM will provide the site supervisor with work plans, staff, and budgetary resources, which are appropriate to meet the safety needs of the project operations.

### **3.2 Safety Professional, Philip Platcow, CIH, Regional Safety Health & Environment Manager**

The Safety Professional is the member of the AECOM Safety, Health and Environmental Department assigned to oversee health and safety requirements for the project and provide any needed technical support. The Safety Professional will be the first point-of-contact for all of the project's health and safety matters. Duties include the following:

- Approving this HASP and any required changes.
- Approving the designated Site Safety Officer (SSO).
- Reviewing all personal exposure monitoring results.
- Investigating any reported unsafe acts or conditions.

### **3.3 Site Supervisor**

The site supervisor has the overall responsibility and authority to direct work operations at the job site according to the provided work plans. The PM may act as the site supervisor while on site.

#### **3.3.1 Responsibilities**

The site supervisor is responsible to:

- Discuss deviations from the work plan with the SSO and PM.
- Discuss safety issues with the PM, SSO, and field personnel.
- Assist the SSO with the development and implementation of corrective actions for site safety deficiencies.
- Assist the SSO with the implementation of this HASP and ensuring compliance.
- Assist the SSO with inspections of the site for compliance with this HASP and applicable SOPs.

#### **3.3.2 Authority**

The site supervisor has authority to:

- Verify that all operations are in compliance with the requirements of this HASP, and halt any activity that poses a potential hazard to personnel, property, or the environment.
- Temporarily suspend individuals from field activities for infractions against the HASP pending consideration by the SSO, the Safety Professional, and the PM.

### **3.3.3 Qualifications**

In addition to being Hazardous Waste Operations and Emergency Response (HAZWOPER)-qualified (see Section 4.1), the Site Supervisor is required to have completed the 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120 (e)(4).

## **3.4 Site Safety Officer**

### **3.4.1 Responsibilities**

The SSO is responsible to:

- Update the site-specific HASP to reflect changes in site conditions or the scope of work. HASP updates must be reviewed and approved by the Safety Professional.
- Be aware of changes in AECOM Safety Policy.
- Monitor the lost time incidence rate for this project and work toward improving it.
- Inspect the site for compliance with this HASP and the SOPs using the appropriate audit inspection checklist provided by an AECOM Safety Professional.
- Work with the site supervisor and PM to develop and implement corrective action plans to correct deficiencies discovered during site inspections. Deficiencies will be discussed with project management to determine appropriate corrective action(s).
- Contact the Safety Professional for technical advice regarding safety issues.
- Provide a means for employees to communicate safety issues to management in a discreet manner (i.e., suggestion box, etc.).
- Determine emergency evacuation routes, establishing and posting local emergency telephone numbers, and arranging emergency transportation.
- Ensure that all site personnel and visitors have received the proper training and medical clearance prior to entering the site.
- Establish any necessary controlled work areas (as designated in this HASP or other safety documentation).
- Present tailgate safety meetings and maintain attendance logs and records.
- Discuss potential health and safety hazards with the Site Supervisor, the Safety Professional, and the PM.
- Select an alternate SSO by name and inform him/her of their duties, in the event that the SSO must leave or is absent from the site.

### **3.4.2 Authority**

The SSO has authority to:

- Verify that all operations are in compliance with the requirements of this HASP.
- Issue a "Stop Work Order" under the conditions set forth in Section 4.9 of this HASP.
- Temporarily suspend individuals from field activities for infractions against the HASP pending consideration by the Safety Professional and the PM.

### 3.4.3 Qualifications

In addition to being HAZWOPER-qualified (see Section 4.1), the SSO is required to have completed the 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120 (e)(4).

## 3.5 Employees

### 3.5.1 Employee Responsibilities

Responsibilities of employees associated with this project include, but are not limited to:

- Understanding and abiding by the policies and procedures specified in the HASP and other applicable safety policies, and clarifying those areas where understanding is incomplete.
- Providing feedback to health and safety management relating to omissions and modifications in the HASP or other safety policies.
- Notifying the SSO, in writing, of unsafe conditions and acts.

### 3.5.2 Employee Authority

The health and safety authority of each employee assigned to the site includes the following:

- The right to refuse to work and/or stop work authority when the employee feels that the work is unsafe (including subcontractors or team contractors), or where specified safety precautions are not adequate or fully understood.
- The right to refuse to work on any site or operation where the safety procedures specified in this HASP or other safety policies are not being followed.
- The right to contact the SSO or the Safety Professional at any time to discuss potential concerns.

## 3.6 Subcontractors

The requirements for subcontractor selection and subcontractor safety responsibilities are outlined in SH&E 303, Evaluation of Subcontractors. Each AECOM subcontractor is responsible for assigning specific work tasks to their employees. Each subcontractor's management will provide qualified employees and allocate sufficient time, materials, and equipment to safely complete assigned tasks. In particular, each subcontractor is responsible for equipping its personnel with any required personnel protective equipment (PPE).

AECOM considers each subcontractor to be an expert in all aspects of the work operations for which they are tasked to provide, and each subcontractor is responsible for compliance with the regulatory requirements that pertain to those services. Each subcontractor is expected to perform its operations in accordance with its own unique safety policies and procedures, in order to ensure that hazards associated with the performance of the work activities are properly controlled. Copies of any required safety documentation for a subcontractor's work activities will be provided to AECOM for review prior to

the start of onsite activities, if required. Accordingly, each subcontractor will have its own HASP to address the risks and precautions its employees will take to avoid incidents of all types.

Hazards not listed in this HASP but known to any subcontractor, or known to be associated with a subcontractor's services, must be identified and addressed to the AECOM PM or the Site Supervisor prior to beginning work operations. The Site Supervisor or authorized representative has the authority to halt any subcontractor operations, and to remove any subcontractor or subcontractor employee from the site for failure to comply with established health and safety procedures or for operating in an unsafe manner.

### **3.7 Visitors**

Authorized visitors (e.g., client representatives, regulators, AECOM management staff, etc.) requiring entry to any work location on the site will be briefed by the PM on the hazards present at that location. Visitors will be escorted at all times at the work location and will be responsible for compliance with their employer's health and safety policies as well as the requirements of this HASP. In addition, this HASP specifies the minimum acceptable qualifications, training and personal protective equipment which are required for entry to any controlled work area; visitors must comply with these requirements at all times.

Unauthorized visitors, and visitors not meeting the specified qualifications, will not be permitted within established controlled work areas.

## 4.0 Safety Programs

### 4.1 HAZWOPER Qualifications

Personnel performing work at the job site must be qualified as HAZWOPER workers (unless otherwise noted in specific THAs or by the SSO), and must meet the medical monitoring and training requirements specified in the following safety procedures:

- SH&E 109, *SH&E Training Program*
- SH&E 501, *Hazard Communication Program*
- SH&E 307, *Project Safety Meetings*
- SH&E 701, *Hazardous Waste Operations and Emergency Response (HAZWOPER)*

Personnel must have successfully completed training meeting the provisions established in 29 CFR 1910.120 (e)(2) and (e)(3) (40-hour initial training). As appropriate, personnel must also have completed annual refresher training in accordance with 29 CFR 1910.120 (e)(8); each person's most recent training course must have been completed within the previous 365 days. Personnel must also have completed a physical exam in accordance with the requirements of 29 CFR 1910.120 (f), where the medical evaluation includes a judgment of the employee's ability to use respiratory protective equipment and to participate in hazardous waste site activities. These requirements are further discussed in SH&E 701, Hazardous Waste Operations and Emergency Response (HAZWOPER).

If site monitoring procedures indicate that a possible exposure has occurred above the OSHA permissible exposure limit (PEL), employees may be required to receive supplemental medical testing to document symptoms specific to the particular materials present.

### 4.2 Site-Specific Safety Training

All personnel performing field activities at the site will be trained in accordance with SH&E 109, SH&E Training Program. For this project, training will include the requirements specified in the following:

1. SH&E 114, Respiratory Protection Program
2. SH&E 501, Hazard Communication Program
3. SH&E 307, Project Safety Meetings
4. SH&E 701, Hazardous Waste Operations and Emergency Response (HAZWOPER)
5. SH&E 507, Lead

In addition to the general health and safety training programs, personnel will be:

- Instructed on the contents of applicable portions of this HASP and any supplemental health and safety information developed for the tasks to be performed.

- Informed about the potential routes of exposure, protective clothing, precautionary measures, and symptoms or signs of chemical exposure and heat stress.
- Made aware of task-specific physical hazards and other hazards that may be encountered during site work. This includes any client-specific required training for health and safety.
- Made aware of fire prevention measures, fire extinguishing methods, and evacuation procedures.

The site-specific training will be performed prior to the worker performing the subject task or handling the impacted materials and on an as-needed basis thereafter. Training will be conducted by the SSO (or his/her designee) and will be documented on the form attached to SH&E 307, Project Safety Meetings.

#### **4.3 Hazard Communication**

Section 5.2 provides information concerning the materials that may be encountered as environmental contaminants during the work activities. In addition, any organization wishing to bring any hazardous material onto any AECOM-controlled work site must first provide a copy of the item's Material Safety Data Sheet (MSDS) to the SSO for approval and filing (the SSO will maintain copies of all MSDSs on site). MSDSs may not be available for locally-obtained products, in which case some alternate form of product hazard documentation may be acceptable. In accordance with the requirements of SH&E 501, Hazard Communication Program, all personnel shall be briefed on the hazards of any chemical product they use, and shall be aware of and have access to all MSDSs.

All containers on site shall be properly labeled to indicate their contents. Labeling on all containers shall contain additional information indicating potential health and safety hazards (flammability, reactivity, etc.). There is no exemption for containers intended for single use or individual use.

Attachment C provides copies of MSDSs for those items planned to be brought on site at the time this HASP is prepared. This information will be updated as required during site operations.

#### **4.4 Confined Space Entry**

The SSO/site supervisor shall identify all potential confined spaces in accordance with SH&E 713, Confined Spaces. In addition, the SSO/site supervisor will inform all employees of the location of confined spaces. Confined space entry procedures and training requirements are listed in SH&E 713. No one shall enter a confined space without first presenting entry plans to Philip Platcow, RSM.

#### **4.5 Hazardous, Solid, or Municipal Waste**

If hazardous, solid, and/or municipal wastes are generated during any phase of the project, the waste shall be accumulated, labeled, and disposed of in accordance with applicable Federal, State, and/or local regulations.

#### **4.6 General Safety Rules**

All site personnel shall adhere to SH&E 103, Safe Work Standards and Rules, during site operations. In addition, the housekeeping, sanitation, and personal hygiene requirements in SH&E 104, General Housekeeping will be observed. Specific excerpts from SH&E 104 are listed below.

#### **4.6.1 Housekeeping**

During site activities, work areas will be continuously policed for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials.

#### **4.6.2 Smoking, Eating, or Drinking**

Smoking, eating and drinking will not be permitted inside any controlled work area at any time. Field workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking). Consumption of alcoholic beverages is prohibited at any AECOM site.

#### **4.6.3 Personal Hygiene**

The following personal hygiene requirements will be observed.

##### **4.6.3.1 Water Supply**

A water supply meeting the following requirements will be utilized:

###### Potable Water

An adequate supply of potable water will be available for field personnel consumption. Potable water can be provided in the form of water bottles, canteens, water coolers, or drinking fountains. Where drinking fountains are not available, individual-use cups will be provided as well as adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

###### Non-Potable Water

Non-potable water may be used for hand washing and cleaning activities. Non-potable water will not be used for drinking purposes. All containers of non-potable water will be marked with a label stating:

***Non-Potable Water  
Not Intended for Drinking Water Consumption***

##### **4.6.3.2 Toilet Facilities**

A minimum of one toilet will be provided for every 20 personnel on site, with separate toilets maintained for each sex except where there are less than 5 total personnel on site. For mobile crews where work activities and locations permit transportation to nearby toilet facilities on-site facilities are not required.

##### **4.6.3.3 Washing Facilities**

Employees will be provided washing facilities (e.g., buckets with water and Alconox) at each work location. The use of water and hand soap (or similar substance) will be required by all employees following exit from the Exclusion Zone, prior to breaks, and at the end of daily work activities.

#### **4.6.4 Buddy System**

All field personnel will use the buddy system when working within any controlled work area. Personnel belonging to another organization on site can serve as "buddies" for AECOM personnel. Under no

circumstances will any employee be present alone in a controlled work area. For areas not in controlled work areas, the procedures outlined in SH&E 306, Working Alone will be followed at all times.

#### **4.6.5 Personal Safety - Urban Setting**

Working in a distressed neighborhood may present hazards associated with street violence or other crime. In these situations, mental preparation before going to the Site and awareness while on-Site are of key importance. If in doubt, always ask Site or client personnel about the safety of a neighborhood. Forethought should be given to arranging to work during daylight hours if possible. Take advantage of any Site security measures (monitoring cameras, security guards) and investigate such measures prior to the field work. Once in the field, work in parties of two or more and stay within view of the general public. Keep a charged cell phone nearby or on your person at all times. Become familiar with your location so you can effectively communicate it over the phone.

In addition to these basic principles, the following is a list of common personal safety rules that apply not only to work at the Site, but to general safety practices while in the field and also between work shifts.

- If at all possible, work/travel in groups. Do not venture out alone.
- Be alert. Notice who passes you and who's behind you. Maintain distance between yourself and strangers. Know where you are, and note potential exit paths.
- If work has paused do not appear slack or distracted. Do not sit in a vehicle with the doors unlocked.
- Walk in well-lighted areas. Don't walk close to bushes, alleys, and so on. In dark or deserted neighborhoods, walk down the middle of the street (be alert to vehicle traffic).
- If a car pulls up slowly, or the occupants of the vehicle bother you, cross the street and walk or run in the other direction. If you are pursued, dial 911.
- If you feel someone is following you, turn around and check. Proceed to the nearest lighted house or place of business.
- Don't overburden yourself with bags or packages, which might impede running or taking care of yourself.
- Be aware of loose clothing, packs/purses and hair. These give an assailant an easier method of grabbing and controlling you. Wear unrestrictive clothing for ease of movement (but not overly loose).
- Carry a non-weapon personal safety device (such as a whistle, panic button, or key light) - anything that could visually or audibly draw attention to your location.
- What you carry in your hand(s) is important. Valuables make you a potential target. Items such as a hand auger or tool may help you be perceived as a less-than-inviting victim.
- Carry as little cash as possible.
- Hold your purse tightly, close to your body. Keep your wallet in a front or in a buttoned, hip pocket. When at a fixed location, lock your valuable items away and out of site (i.e., in a trunk).
- Be careful when people stop you for directions or information. Always reply from a distance; never get too close to a stranger's car.
- If you feel that you are in danger, don't be afraid to scream and run.

- Toss wallet/keys away from direction of escape.
- Don't attach car keys to house keys.
- Leave large valuables (purse, laptop) locked and hidden in the vehicle.

#### 4.6.6 Heat and Cold Stress

Heat and cold stress may vary based upon work activities, PPE/clothing selection, geographical locations, and weather conditions. To reduce the potential of developing heat/cold stress, be aware of the signs and symptoms of heat/cold stress and watch fellow employees for signs of heat/cold stress. For additional requirements, refer to SH&E 616, Heat Stress Prevention Program, and SH&E 615, Cold Stress Prevention Program.

Heat stress can be a significant field site hazard, particularly for non-acclimated personnel operating in a hot, humid setting. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and the prevention of heat stress casualties. Work-rest cycles will be determined and the appropriate measures taken to prevent heat stress as outlined in SH&E 616, Heat Stress Prevention Program.

##### 4.6.6.1 Responding to Heat-Related Illness

The guidance below will be used in identifying and treating heat-related illness.

**Table 4-1 Identification and Treatment of Heat-Related Illness**

Type of Heat-Related Illness	Description	First Aid
Mild Heat Strain	The mildest form of heat-related illness. Victims exhibit irritability, lethargy, and significant sweating. The victim may complain of headache or nausea. This is the initial stage of overheating, and prompt action at this point may prevent more severe heat-related illness from occurring.	<ul style="list-style-type: none"> <li>• Provide the victim with a work break during which he/she may relax, remove any excess protective clothing, and drink cool fluids.</li> <li>• If an air-conditioned spot is available, this is an ideal break location.</li> <li>• Once the victim shows improvement, he/she may resume working; however, the work pace should be moderated to prevent recurrence of the symptoms.</li> </ul>
Heat Exhaustion	Usually begins with muscular weakness and cramping, dizziness, staggering gait, and nausea. The victim will have pale, clammy moist skin and may perspire profusely. The pulse is weak and fast and the victim may faint unless they lie down. The bowels may move involuntarily.	<ul style="list-style-type: none"> <li>• Immediately remove the victim from the work area to a shady or cool area with good air circulation (<i>avoid drafts or sudden chilling</i>).</li> <li>• Remove all protective outerwear.</li> <li>• Call a physician.</li> <li>• Treat the victim for shock. (<i>Make the victim lie down, raise his or her feet 6–12 inches, and keep him/her cool by loosening all clothing</i>).</li> <li>• If the victim is conscious, it may be helpful to give him/her sips of water.</li> <li>• Transport victim to a medical facility ASAP.</li> </ul>

Type of Heat-Related Illness	Description	First Aid
Heat Stroke	The most serious of heat illness, heat stroke represents the collapse of the body's cooling mechanisms. As a result, body temperature may rise to 104 degrees Fahrenheit or higher. As the victim progresses toward heat stroke, symptoms such as headache, dizziness, nausea can be noted, and the skin is observed to be dry, red, and hot. Sudden collapse and loss of consciousness follows quickly and death is imminent if exposure continues. Heat stroke can occur suddenly.	<ul style="list-style-type: none"> <li>• Immediately evacuate the victim to a cool/shady area.</li> <li>• Remove all protective outerwear and as much personal clothing as decency permits.</li> <li>• Lay the victim on his/her back w/the feet slightly elevated.</li> <li>• Apply cold wet towels or ice bags to the head, armpits, and thighs.</li> <li>• Sponge off the bare skin with cool water.</li> <li>• The main objective is to cool without chilling the victim.</li> <li>• Give no stimulants or hot drinks.</li> <li>• Since heat stroke is a severe medical condition requiring professional medical attention, emergency medical help should be summoned immediately to provide onsite treatment of the victim and proper transport to a medical facility.</li> </ul>

#### 4.6.6.2 Ultraviolet Radiation Protection

To protect against exposure to ultraviolet (UV) radiation, workers will observe the following requirements:

1. All workers will wear sunglass-type safety glasses at all times when working outdoors during daylight hours.
2. Workers will utilize a commercial sunblock with a minimum solar protection factor (SPF) of 30 or higher.
3. Wide-brim hard hats are recommended as they provide additional UV protection.

#### 4.7 Use of Utility Knives or Other Open-Bladed Cutting Tools

All utility knives with manually retracting blades (including "pocket knives" and other "collapsible, open-blade cutting tools") are no longer permitted on any AECOM jobsite, unless specifically authorized by Philip Platcow, RSM. The only acceptable type of utility knife will be those with automatically retracting blades. Other "cutters" must be equipped with a completely enclosed and guarded blade. Additional recommendations regarding the use of cutting tools can be found in SH&E 610, Hand and Power Tools.

#### 4.8 Equipment Safety Cards

Equipment safety cards have been produced by the SH&E Department for review prior to operating portable mechanized equipment (e.g., chainsaws, chop saws, power washers, etc.). Equipment safety cards should be used as a point of reference prior to using the specified piece of equipment. The cards will be used in conjunction with the manufacturers operating instructions. Personnel must be adequately trained in the tools usage prior to operation, thus using the card as a reminder or THA/JSA for additional safe operation. The cards are not a substitute for training, which at a minimum, must

consist of having an observed skill set indicating good working knowledge and equipment operation time.

#### **4.9 Stop Work Authority**

All employees have the right and duty to stop work when conditions are unsafe, and to assist in correcting these conditions as outlined in SH&E 101, Stop Work Authority. Whenever the SSO determines that workplace conditions present an uncontrolled risk of injury or illness to employees, immediate resolution with the appropriate supervisor shall be sought. Should the supervisor be unable or unwilling to correct the unsafe conditions, the SSO is authorized and required to stop work, which shall be immediately binding on all affected AECOM employees and subcontractors.

Upon issuing the stop work order, the SSO shall implement corrective actions so that operations may be safely resumed. Resumption of safe operations is the primary objective; however, operations shall not resume until the Safety Professional has concurred that workplace conditions meet acceptable safety standards.

#### **4.10 Client Specific Safety Requirements**

The client has specified no additional health and safety requirements.

## 5.0 Hazard Assessment

### 5.1 Hazard Analysis

Task hazard analysis (THA) or Job Safety Analysis (JSA) is a technique used to identify hazards and hazard controls associated with a specific job function. THAs/JSAs focus on the relationship between the workers, the task, the resources required to complete the task, and the work environment. These variables must be evaluated to identify the potential hazards associated with the task. Once identified, steps can be taken to eliminate, reduce, or control the hazards to an acceptable risk level. Guidelines for developing THAs/JSAs are located in SH&E 302, Risk Assessment and Hazard Analysis.

Section 2.2 describes the work activities anticipated to be performed during this project. Individual THAs/JSAs for the tasks associated with this work can be found in Attachment B.

#### 5.1.1 Unanticipated Work Activities/Conditions

Operations at the site may require additional tasks not identified in Section 2.2 or addressed in Attachment B, THAs/JSAs. Before performing any task not covered in this HASP a THA/JSA must be prepared, and approved by the Safety Professional.

### 5.2 Environmental Contaminant Exposure Hazards

The following is a discussion of the hazards presented to worker personnel during this project from on-site chemical and radiological hazards known or suspected to be present on site. Hazards associated with chemical products brought to the site during work operations are addressed separately, under the Hazard Communication process described in Section 4.3.

Exposure symptoms and applicable first aid information for each suspected site contaminant listed in Section 2 are located in the following subsections.

Exposure pathways of concern for chemical compounds that may be present at the Site are inhalation of airborne contaminants, direct skin contact with contaminated materials, and incidental ingestion of affected media. Wearing protective equipment and following decontamination procedures listed in Section 7 can minimize dermal contact and incidental ingestion. To minimize inhalation hazards, dust or vapor control measures will be implemented, where necessary, and action levels will be observed during scheduled activities. Dust control measures may include applying water to cutting surfaces (where appropriate – concrete) or haul roads and stock piles, and covering stock piles with plastic sheeting. Site-specific action levels and air monitoring requirements are presented in Section 6.

Known or Suspected Compounds	Source (soil/water/sludge, etc.)	Known Concentration Range (ppm, mg/kg, mg/l) (Note a.)	
		Lowest	Highest
Total Mercury (mercuric oxide)	Soil	non-detect	180 mg/kg
Total Lead	Soil	non-detect	28,000 mg/kg

Note a: Soil data from samples collected by NYSDEC in May 2009 and by AECOM for Gillette in 2010.

Chemical descriptions of chemicals of concern, including health effects and exposure limits, are presented in the following paragraphs. Each chemical description includes physical and odor recognition characteristics, the health effects associated with exposure, and exposure limits expressed as an 8-hour time-weighted average (TWA). Provided are federal OSHA (OSHA) permissible exposure limits (PELs; located in 29 CFR 1910.1000); California OSHA (Cal/OSHA) PELs (located in 8 CCR 5155); and the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLVs).

### 5.2.1 Mercuric Oxide

Mercuric oxide or Mercury (II) oxide is an inorganic mercury salt typically red or yellow in color that has historically been used in small battery manufacturing. Mercuric oxide decomposes with exposure to light or heat above 500°C. The substance also has the potential to react violently with reducing agents, chlorine, hydrogen peroxide, magnesium (when heated), disulfur dichloride and hydrogen trisulfide. Shock-sensitive compounds may be formed with metals and elements such as sulfur and phosphorus. Mercuric oxide is most hazardous through ingestion, however exposure can occur through inhalation and less likely through skin absorption. Health effects may include irritation to the eyes, skin, and respiratory tract, changes in personality, muscle tremors, memory loss, metallic taste, loosening of teeth, digestive disorders, skin rashes, and brain and kidney damage.

### 5.2.2 Elemental Mercury

**Note:** Elemental mercury is not known to be present at the site in that mercury in the form of mercuric oxide was used in the former manufacturing processes. This text is presented for informational purposes, only.

Mercury is a silver-colored, heavy, mobile liquid element in its pure form. Mercury is a poison by inhalation, and is corrosive to skin, eyes, and mucous membranes. It may be absorbed into the body through the skin. Human systemic effects by inhalation include wakefulness, muscle weakness, anorexia, headache, diarrhea, liver changes, dermatitis, and fever. It is an experimental teratogen with experimental reproductive effects and tumorigenic data. When heated to decomposition it emits toxic fumes of mercury.

- The OSHA PEL is listed as 0.1 mg/m<sup>3</sup> as a Ceiling Value for elemental mercury, inorganic compounds and aryl compounds. The OSHA PEL is listed as 0.04 mg/m<sup>3</sup> as a Ceiling Value for Alkyl compounds.
- The TLV is listed as 0.01 mg/m<sup>3</sup> for mercury alkyls, 0.1 mg/m<sup>3</sup> for mercury aryl compounds, and 0.025 mg/m<sup>3</sup> for inorganic forms including metallic mercury

**Note:** Published exposure limits designate a skin notation indicating that dermal contact can contribute to the overall exposure.

### 5.2.3 Lead

Lead (inorganic) is a bluish-white, silver or gray odorless solid in its pure form. Short-term exposure to high levels of lead can cause decreased appetite, insomnia, headache, muscle and joint pain, colic, and constipation. Considerable data exist on the effects of lead exposure in humans. It is a poison by ingestion and a suspected human carcinogen of the lungs and kidneys. There are data to suggest that lead is a mutagen and can cause reproductive effects. Human systemic effects by ingestion and inhalation (the two routes of absorption) include loss of appetite, anemia, malaise, insomnia, headache, irritability, muscle and joint pains, tremors, flaccid paralysis without anesthesia, hallucinations and distorted perceptions, muscle weakness, gastritis, and liver changes. Recent experimental evidence

suggests that blood levels of lead below 10 µg/dl (micrograms per deciliter) can have the effect of diminishing the IQ scores of children.

- The OSHA PEL is listed as 0.05 mg/m<sup>3</sup> and the OSHA PEL for tetraethyl lead and tetramethyl lead is listed as 0.075 mg/m<sup>3</sup>.
- The TLV for elemental lead is listed as 0.05 mg/m<sup>3</sup>, the TLV for tetraethyl lead is 0.1 mg/m<sup>3</sup> and the TLV for tetramethyl lead is 0.15 mg/m<sup>3</sup>.

Note: Published exposure limits designate a skin notation indicating that dermal contact (to organic forms) can contribute to the overall exposure.

## **5.2.4 Assessment of Exposure Hazards**

### **5.2.4.1 Inhalation**

The risk of exposure through inhalation of lead and mercury during investigation and IRM activities is possible when dust is produced and entrained into air in the breathing zone. Dust levels will be monitored with a Dust Trac or equivalent equipment, and efforts will be employed to reduce the generation of dust during these activities.

### **5.2.4.2 Skin Contact**

Absorption of mercury and lead through dermal exposure is possible, but considered less is less likely. Nevertheless, appropriate PPE, such as nitrile gloves, will be worn when handling soil samples and equipment will be thoroughly decontaminated after completing each boring.

### **5.2.4.3 Ingestion**

Ingestion is considered the most direct route of exposure to lead and mercury, however, site activities present little risk of ingesting contaminated soil or water. In addition, no eating, drinking, or smoking will be allowed in the work zone. While working around catch basins and manholes or in excavations, there is a little risk of ingestion due to splash hazards.

## **5.3 Physical Hazards**

The physical hazards on the site include noise created during the advancement of drilling tools to collect soil samples, back strain from improper lifting, and vehicular injury while moving between properties and the soil processing area on site. Slips, trips and falls while working around storm sewer manholes.

## **5.4 Biological Hazards**

Biological hazards include the possible presence of dogs that could bite and West Nile Virus from mosquitoes. Poison ivy is present in New York State, but it may not be prevalent in the urban setting of the site.

## **5.5 Radiological Hazards**

No Radiological Hazards have been identified.

## **5.6 Ultraviolet Hazards**

The work is expected to be performed during the summer when the UV index will be around 9. Care will be taken to limit exposure through the use of sunscreen and long sleeve shirts. Work at high elevations is not part of this project.

## 6.0 Activity Specific Requirements

### 6.1 Supplemental Safety Procedures

As discussed in Section 5.0, personnel may be exposed to a variety of chemical, physical, and biological hazards resulting from task- or equipment-specific activities. The requirements for the control of many of these hazards are discussed in SOPs found in the 500 to 700 Series of the AECOM U.S. Operations SH&E Manual.

Specific procedures applicable to this project include:

- SOP 501 – Hazard Communication Program
- SOP 502 – HAZMAT and Sample Shipping
- SOP-509 – Biological Hazards
- SOP 607 – Manual Lifting
- SOP 608 – Handling Drums and Large Containers
- SOP 610 – Hand and Power Tools
- SOP 613 – Pressure Washers
- SOP 615 – Cold Stress
- SOP-616 – Heat Stress
- SOP 709 – Drum Tank and Large Container Sampling
- SOP 714 – Excavation and Trenching
- SOP 716 – Drilling and Boring
- SOP 726 – Identifying Underground Utilities

### 6.2 Exposure Monitoring Procedures

Monitoring procedures will be employed during site investigation and remedial activities to assess employee exposure to chemical and physical hazards. Monitoring will consist primarily of on-site determination of various parameters (e.g., airborne contaminant concentrations and heat stress effects), but may be supplemented by more sophisticated monitoring techniques, if necessary.

#### 6.2.1 Real-Time Exposure Measurement

Monitoring shall be performed within the work area on site in order to detect the presence and relative levels of toxic substances. The data collected throughout monitoring shall be used to determine the appropriate levels of PPE. Monitoring shall be conducted as specified in each THA/JSA (Attachment B) as work is performed.

Table 6-1 specifies the real-time monitoring equipment, which will be used for this project.

**Table 6-1 Monitoring Parameters and Equipment**

Instrument	Manufacturer/Model*	Substances Detected
Photo Ionization Detector (PID)	RAE Systems mini-RAE Photovac Microtip HNu Model Hnu (min. 10.6 eV bulb)	Petroleum hydrocarbons Organic Solvents
Mercury Vapor Analyzer (MVA)	Jerome 431-X	Mercury Vapors (elemental mercury)
Combustible Gas Indicator (CGI) Combined with individual or multi-gas detectors.	MultiRAE	Explosivity Oxygen (O <sub>2</sub> ) Carbon Monoxide (CO) Hydrogen Sulfide (H <sub>2</sub> S) Cyanide Gases (CN <sup>-</sup> )
Particulate Monitor	MIE Model PDM-3 mini-RAM Dust Trac	Aerosols, mist, dust, and fumes

\*Or similar unit, as approved by the SH&E Professional

#### 6.2.1.1 Health and Safety Action Levels

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone.

If ambient levels are measured which exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs, and mitigative actions, etc.) must be implemented prior to commencing activities at the specific work area.

Personnel should also be able to upgrade or downgrade their level of protection with the concurrence of SSO or the Safety Professional.

Reasons to upgrade:

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas, vapor, or dust emission.
- Change in work task that will increase the exposure or potential exposure to hazardous materials.

Reasons to downgrade:

- New information indicating that the situation is less hazardous than was originally suspected.
- Change in site conditions that decrease the potential hazard.
- Change in work task that will reduce exposure to hazardous materials.

### 6.2.1.2 Monitoring Procedures

The following action levels were developed for exposure monitoring with real-time air monitoring instruments. Air monitoring data will determine the required respiratory protection levels at the Site during scheduled intrusive activities. The action levels are based on sustained readings indicated by the instrument(s). Air monitoring will be performed and recorded at up to 15-minute intervals.

If elevated concentrations are indicated, the monitoring frequency will be increased, as appropriate. If during this time, sustained measurements are observed, the following actions will be instituted, and the PM and RSM will be notified. For purposes of this HASP, sustained readings are defined as the average airborne concentration maintained for a period of one (1) minute above established background levels.

#### 6.2.1.2.1 Action Levels for Airborne Dust

Activity	Action Level	Level of Respiratory Protection
RI and IRM activities including but not limited to subsurface drilling, general traffic, etc.	< 0.5 mg/m <sup>3</sup> above background	Level D: No respiratory protection required.
	0.5 to 2.5 mg/m <sup>3</sup>	Institute dust control measures as specified in Section 5.3. If ineffective, stop work or use Level C: Half-or full-face air-purifying respirator fitted with HEPA filter cartridges.
	> 2.5 mg/m <sup>3</sup>	Cease operations and evacuate work area. Contact RSM and PM immediately.

#### 6.2.1.2.2 Action Levels for Hydrogen Sulfide and LEL

Activity	Action Level	Level of Respiratory Protection
Opening sewer manholes	< 5 ppm H <sub>2</sub> S < 5% LEL	Level D: No respiratory protection required.
Opening sewer manholes	≥ 5 ppm H <sub>2</sub> S ≥ 5% LEL	Cease operations and evacuate work area. Contact Director and PM immediately.

#### 6.2.1.2.3 Action Levels for Mercury Vapors

Activity	Action Level	Level of Respiratory Protection
Subsurface RI and IRM activities including but not limited to subsurface drilling, etc.	< 0.025 mg/m <sup>3</sup>	Level D: No respiratory protection required.
	0.025 mg/m <sup>3</sup> to 1.25 mg/m <sup>3</sup>	Cease operations and evacuate work area. Contact Director and PM immediately.

### 6.2.1.3 Monitoring Equipment Calibration

All instruments used will be calibrated at the beginning and end of each work shift, in accordance with the manufacturer's recommendations. If the owner's manual is not available, the personnel operating

the equipment will contact the applicable office representative, rental agency or manufacturer for technical guidance for proper calibration. If equipment cannot be pre-calibrated to specifications, site operations requiring monitoring for worker exposure or off-site migration of contaminants will be postponed or temporarily ceased until this requirement is completed.

#### 6.2.1.4 Personal Sampling

Should site activities warrant performing personal sampling to better assess chemical exposures experienced by AECOM employees, the SSO, under the direction of a Certified Industrial Hygienist (CIH), will be responsible for specifying the monitoring required. Within five working days after the receipt of monitoring results, the CIH will notify each employee, in writing, of the results that represent that employee's exposure. Copies of air sampling results will be maintained in the project files.

If the site activities warrant, the subcontractor will ensure its employees' exposures are quantified via the use of appropriate sampling techniques. The subcontractor shall notify the employees sampled in accordance with health and safety regulations, and provide the results to the SSO for use in determining the potential for other employees' exposure.

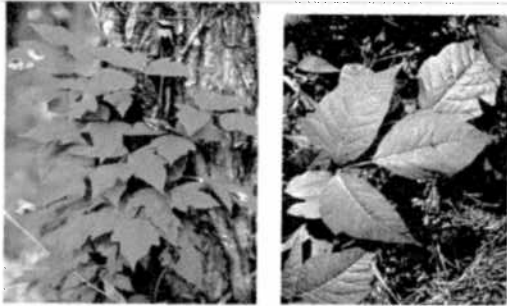
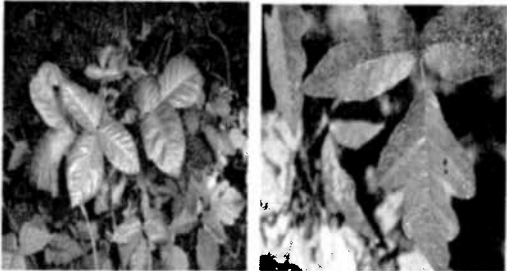
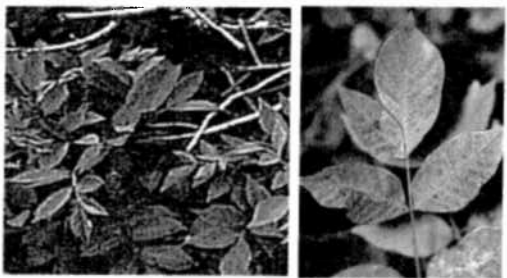
### 6.2.2 Biological Hazard Injury and Illness Prevention

Contact with bodies of water, animals, insects, and plants can cause injury and illness to personnel. Care must be taken to ensure that these types of injuries are avoided. Preventative measures are outlined in SH&E 509, Biological Hazard Injury and Illness Prevention. Some examples of biological hazards include:

1. Natural and artificial bodies of water (e.g., lakes, rivers, ponds, lagoons, etc.) may contain a variety of microorganisms. Microorganisms, in particular, present a significant hazard to personnel who may come into contact with water bodies. Contact with microorganisms in water may result in dermatitis, infection (i.e., in cuts/lacerations), digestive distress, and other diseases. Always be aware of areas that may contain excessive amounts of microorganisms. Such areas may include areas of standing water; areas of warm water (i.e., cooling tower effluents, etc.); and areas downstream of municipal wastewater treatment. To prevent exposure to microorganisms in water, always adhere to the following:
  - Wear protective gloves (i.e., nitrile, etc.) and other appropriate PPE to prevent skin contact with water.
  - Never drink from natural or artificial bodies of water. Such water is considered non-potable and is not safe for drinking.
2. Wild animals, such as snakes, raccoons, squirrels, and rats. These animals not only can bite and scratch, but can carry transmittable diseases (e.g., rabies). Avoid the animals whenever possible. If bitten, go to the nearest medical facility.
3. Insects such as mosquitoes, ticks, bees, and wasps. Mosquitoes can potentially carry and transmit the West Nile Virus. Ticks can transmit Lyme disease or Rocky Mountain Spotted Fever. Bees and wasps can sting by injecting venom, which causes some individuals to experience anaphylactic shock (extreme allergic reaction). Whenever you will enter areas that provide a habitat for insects (e.g., grass areas, woods), wear light-colored clothing, long pants and shirt, and spray exposed skin areas with a DEET-containing repellent. Keep away from high grass wherever possible. Keep your eyes and ears open for bee and wasp nests. If bitten by insects, see a doctor if there is any question of an allergic reaction.

4. Plants such as poison ivy and poison oak can cause severe rashes on exposed skin. Be careful where you walk, wear long pants, and minimize touching exposed skin with your hands after walking through thickly vegetated areas until after you have thoroughly washed your hands with soap and water. Examples of common poisonous or irritating plant species, common to the United States, are shown in Table 6-2.

**Table 6-2 Hazardous Plant Identification Guide**

<p><b>Poison Ivy</b></p> <ul style="list-style-type: none"> <li>• Grows in West, Midwest, Texas, East</li> <li>• Several forms – vine, trailing shrub, or shrub</li> <li>• Three leaflets (can vary 3-9)</li> <li>• Leaves green in summer, red in fall</li> <li>• Yellow or green flowers</li> <li>• White berries</li> </ul>	
<p><b>Poison Oak</b></p> <ul style="list-style-type: none"> <li>• Grows in the East (NJ to Texas), Pacific Coast</li> <li>• 6-foot tall shrubs or long vines</li> <li>• Oak-like leaves, clusters of three</li> <li>• Yellow berries</li> </ul>	
<p><b>Poison Sumac</b></p> <ul style="list-style-type: none"> <li>• Grows in boggy areas, especially in the Southwest and Northern states</li> <li>• Shrub up to 15 feet tall</li> <li>• Seven to 13 smooth-edged leaflets</li> <li>• Glossy pale yellow or cream-colored berries</li> </ul>	

#### 6.2.2.1 Response Measures for Contact with Hazardous Plants

If you have been exposed to poison ivy, oak, or sumac, act quickly because the toxin in the plants penetrates the skin within minutes. If possible, stay outdoors until you complete the first two steps:

1. Cleanse the exposed skin with generous amounts of isopropyl alcohol
2. Wash the skin with water

3. Take a regular shower with soap and warm water. Do not use soap until this point because it will pick up the toxin from the surface and move it around
4. Wash clothes, tools, and anything else that may have been in contact with the toxin, with alcohol and water. Be sure to wear hand protection during that process

Signs and symptoms of exposure include redness and swelling that appears 12 to 48 hours after exposure. Blistering and itching will follow. If you have had a severe reaction in the past, you should see an occupational physician right away. Otherwise, according to the Federal Drug Administration (FDA), there are quite a few effective over-the-counter products to help with symptoms, including Cortaid and Lanacort, baking soda, Aveeno oatmeal bath, and calamine lotion.

## 7.0 Personal Protective Equipment

### 7.1 Personal Protective Equipment

The purpose of personal protective equipment (PPE) is to provide a barrier, which will shield or isolate individuals from the chemical and/or physical hazards that may be encountered during work activities. SH&E 115, Personal Protective Equipment Program, lists the general requirements for selection and usage of PPE. Table 7-1 lists the minimum PPE required during site operations and additional PPE that may be necessary. The specific PPE requirements for each work task are specified in the individual JSA/THAs found in Attachment B.

By signing this HASP you are agreeing that you have been properly trained in the use, limitations, care and maintenance of the protective equipment you will use at this project. If you have not received training on the proper use, care, and, limitations of the PPE required for this project, please see the PM/SSO for the proper training prior to signing this HASP.

**Table 7-1 Personal Protective Equipment**

Type	Material	Additional Information
<b>Minimum PPE</b>		
Safety Vest	ANSI Type II high-visibility	Must have reflective tape/be visible from all sides
Boots	Leather	ANSI approved safety toe
Safety Glasses		ANSI Approved; ≥98% UV protection
Hard Hat		ANSI Approved; recommended wide-brim
Work Uniform		No shorts/cutoff jeans or sleeveless shirts
<b>Additional PPE</b>		
Hearing Protection	Ear plugs and/ or muffs with NRR of greater than 26 dBA.	In hazardous noise areas.
Leather Gloves		If working with sharp objects or powered equipment.
Protective Chemical Gloves	Inner: Nitrile	
Level C Respiratory Protection	MSA (Full Face or equivalent) equipped with GMA/P100	
Faceshield		Safety glasses or goggles must be worn concurrently.
Sunscreen	SPF 30 or higher	

## 7.2 PPE Doffing and Donning Information

The following information is to provide field personnel with helpful hints that, when applied, make donning and doffing of PPE a more safe and manageable task:

- Never cut disposable booties from your feet with basic utility knives. This has resulted in workers cutting through the bootie and the underlying sturdy leather work boot, resulting in significant cuts to the legs/ankles. Recommend using a pair of scissors or a package/letter opener (cut above and parallel with the work boot) to start a cut in the edge of the bootie, then proceed by manually tearing the material down to the sole of the bootie for easy removal.
- When applying duct tape to PPE interfaces (wrist, lower leg, around respirator, etc.) and zippers, leave approximately one inch at the end of the tape to fold over onto itself. This will make it much easier to remove the tape by providing a small handle to grab while still wearing gloves. Without this fold, trying to pull up the tape end with multiple gloves on may be difficult and result in premature tearing of the PPE.
- Have a "buddy" check your ensemble to ensure proper donning before entering controlled work areas. Without mirrors, the most obvious discrepancies can go unnoticed and may result in a potential exposure situation.
- Never perform personal decontamination with a pressure washer.

## 7.3 Decontamination

### 7.3.1 General Requirements

All possible and necessary steps shall be taken to reduce or minimize contact with chemicals and contaminated/impacted materials while performing field activities (e.g., avoid sitting or leaning on, walking through, dragging equipment through or over, tracking, or splashing potential or known contaminated/impacted materials, etc).

All personal decontamination activities shall be performed with an attendant (buddy) to provide assistance to personnel that are performing decontamination activities. Depending on specific site hazards, attendants may be required to wear a level of protection that is equal to the required level in the Exclusion Zone (EZ).

All persons and equipment entering the EZ shall be considered contaminated, and thus, must be properly decontaminated prior to entering the SZ.

Decontamination procedures may vary based on site conditions and nature of the contaminant(s). If chemicals or decontamination solutions are used, care should be taken to minimize reactions between the solutions and contaminated materials. In addition, personnel must assess the potential exposures created by the decontamination chemical(s) or solutions. The applicable Material Safety Data Sheet (MSDS) must be reviewed, implemented, and filed by personnel contacting the chemicals/solutions.

All contaminated PPE and decontamination materials shall be contained, stored and disposed of in accordance with site-specific requirements determined by site management.

### 7.3.2 Decontamination Equipment

The equipment required to perform decontamination may vary based on site-specific conditions and the nature of the contaminant(s). The following equipment is commonly used for decontamination purposes:

- Soft-bristle scrub brushes or long-handled brushes to remove contaminants
- Hoses, buckets of water or garden sprayers for rinsing
- Large plastic/galvanized wash tubs or children's wading pools for washing and rinsing solutions
- Large plastic garbage cans or similar containers lined with plastic bags for the storage of contaminated clothing and equipment
- Metal or plastic cans or drums for the temporary storage of contaminated liquids
- Paper or cloth towels for drying protective clothing and equipment

### 7.3.3 Personal/Equipment Decontamination

All equipment leaving the EZ shall be considered contaminated and must be properly decontaminated to minimize the potential for exposure and off-site migration of impacted materials. Such equipment may include, but is not limited to: sampling tools, heavy equipment, vehicles, PPE, support devices (e.g., hoses, cylinders, etc.), and various handheld tools.

All employees performing equipment decontamination shall wear the appropriate PPE to protect against exposure to contaminated materials. The level of PPE may be equivalent to the level of PPE required in the EZ. Other PPE may include splash protection, such as face-shields and splash suits, and knee protectors. Following equipment decontamination and doffing of PPE, employees should wash hands and any body surfaces where incidental exposure has occurred with a water and detergent solution, such as D-Lead® Cleaning solutions, effective for removing metals, and rinse thoroughly with clean water.

For larger equipment, a high-pressure washer may need to be used. Some contaminants require the use of a detergent or chemical solution (such as sodium triphosphate) and scrub brushes to ensure proper decontamination.

For smaller equipment, use the following steps for decontamination:

1. Remove majority of visible gross contamination in EZ.
2. Wash equipment in decontamination solution with a scrub brush and/or power wash heavy equipment.
3. Rinse equipment.
4. Visually inspect for remaining contamination.
5. Follow appropriate personal decontamination steps outlined above.

All decontaminated equipment shall be visually inspected for contamination prior to leaving the Contaminant Reduction Zone (CRZ). Signs of visible contamination may include an oily sheen, residue or contaminated soils left on the equipment. All equipment with visible signs of contamination shall be discarded or re-decontaminated until clean. Depending on the nature of the contaminant, equipment may have to be analyzed using a wipe method or other means.

## 8.0 Site Control

### 8.1 General

The purpose of site control is to minimize potential contamination of workers, protect the public from site hazards, and prevent vandalism. The degree of site control necessary depends on the site characteristics, site size, and the surrounding community.

Controlled work areas will be established at each work location, and if required, will be established directly prior to the work being conducted. Diagrams designating specific controlled work areas will be drawn on site maps, posted in the support vehicle or trailer and discussed during the daily safety meetings. If the site layout changes, the new areas and their potential hazards will be discussed immediately after the changes are made. General examples of zone layouts have been developed for drilling and earth moving activities [(e.g., excavating, trenching, etc.) – post these diagrams as appropriate] and are attached to this section.

### 8.2 Controlled Work Areas

Each HAZWOPER controlled work area will consist of the following three zones:

- Exclusion Zone: Contaminated work area.
- Contamination Reduction Zone: Decontamination area.
- Support Zone: Uncontaminated or “clean area” where personnel should not be exposed to hazardous conditions.

Each zone will be periodically monitored in accordance with the air monitoring requirements established in this HASP. The Exclusion Zone and the Contamination Reduction Zone are considered work areas. The Support Zone is accessible to the public (e.g., vendors, inspectors).

#### 8.2.1 Exclusion Zone

The Exclusion Zone is the area where primary activities occur, such as sampling, remediation operations, installation of wells, cleanup work, etc. This area must be clearly marked with hazard tape, barricades or cones, or enclosed by fences or ropes. Only personnel involved in work activities, and meeting the requirements specified in the applicable THA/JSA and Sections 4.1 and 4.2 will be allowed in an Exclusion Zone.

The extent of each area will be sufficient to ensure that personnel located at/beyond its boundaries will not be affected in any substantial way by hazards associated with sample collection activities. To meet this requirement, the following minimum distances will be used:

- Direct Push Drilling Activities. A distance of 20 feet in all directions will be cleared from the rig.
- HSA Drilling. Determine the mast height of the drill rig. This height will be cleared, if practical, in all directions from the bore-hole location and designated as the exclusion zone. The cleared area will be sufficient to accommodate movement of necessary equipment and the stockpiling of spoils piles.

- **Potholing Activities.** A distance of 25 feet will be cleared in all directions from the backhoe and the location where the excavated soil is deposited.
- **Slab Cutting.** A distance of 10 feet in all directions from the cutting location will be cleared when using manual methods (i.e., chisel or equivalent) and 20 feet when using a concrete saw.
- **Hand Augering.** A distance of 10 feet will be cleared in all directions from the sampling location in order to accommodate additional sampling equipment.
- **Concrete Bulk Sampling.** A distance of 10 feet will be cleared in all directions from the bulk collection point.

All personnel should be alert to prevent unauthorized, accidental entrance into controlled-access areas (the EZ and CRZ). If such an entry should occur, the trespasser should be immediately escorted outside the area, or all HAZWOPER-related work must cease. All personnel, equipment, and supplies that enter controlled-access areas must be decontaminated or containerized as waste prior to leaving (through the CRZ only).

### **8.2.2 Contamination Reduction Zone**

The Contamination Reduction Zone is the transition area between the contaminated area and the clean area. Decontamination is the main focus in this area. The decontamination of workers and equipment limits the physical transfer of hazardous substances into the clean area. This area must also be clearly marked with hazard tape and access limited to personnel involved in decontamination. Decontamination procedures are further explained in Section 7.3.

### **8.2.3 Support Zone**

The Support Zone is an uncontaminated zone where administrative and other support functions, such as first aid, equipment supply, emergency information, etc., are located. The Support Zone shall have minimal potential for significant exposure to contaminants (i.e., background levels).

Employees will establish a Support Zone (if necessary) at the site before the commencement of site activities. The Support Zone would also serve as the entry point for controlling site access.

## **8.3 Site Access Documentation**

If implemented by the PM, all personnel entering the site shall complete the "Site Entry/Exit Log" located at the site trailer or primary site support vehicle.

### **8.3.1 Visitor Access**

Visitors to any HAZWOPER controlled-work area must comply with the health and safety requirements of this HASP, and demonstrate an acceptable need for entry into the work area. All visitors desiring to enter any controlled work area must observe the following procedures:

1. A written confirmation must be received by AECOM documenting that each of the visitors has received the proper training and medical monitoring required by this HASP. Verbal confirmation can be considered acceptable provided such confirmation is made by an officer or other authorized representative of the visitor's organization.

2. Each visitor will be briefed on the hazards associated with the site activities being performed and acknowledge receipt of this briefing by signing the appropriate tailgate safety briefing form.
3. All visitors must be escorted by an AECOM employee.

If the site visitor requires entry to any EZ, but does not comply with the above requirements, all work activities within the EZ must be suspended. Until these requirements have been met, entry will not be permitted.

## 8.4 Site Security

Site security is necessary to:

- Prevent the exposure of unauthorized, unprotected people to site hazards
- Avoid the increased hazards from vandals or persons seeking to abandon other wastes on the site
- Prevent theft
- Avoid interference with safe working procedures

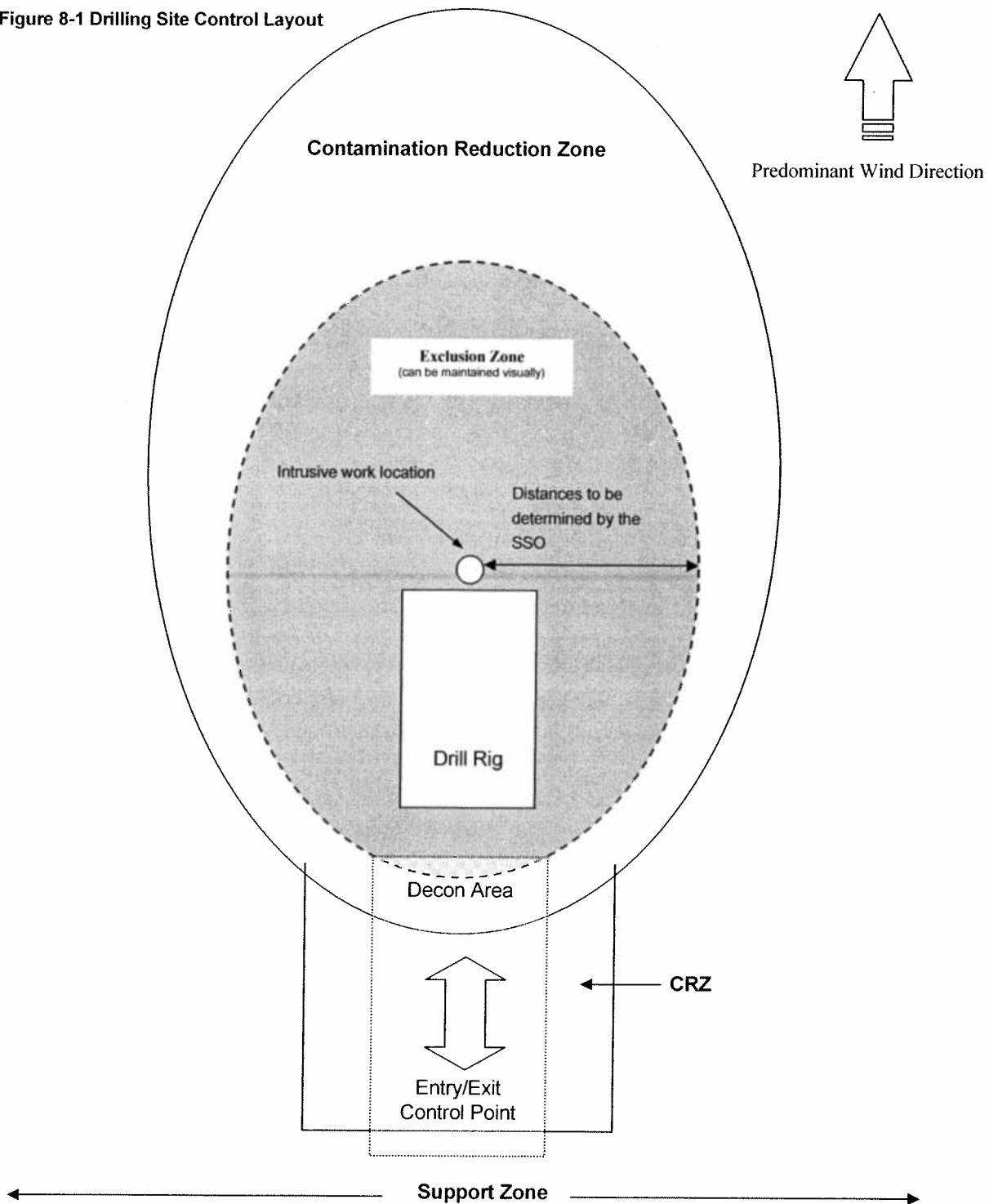
To maintain site security during working hours:

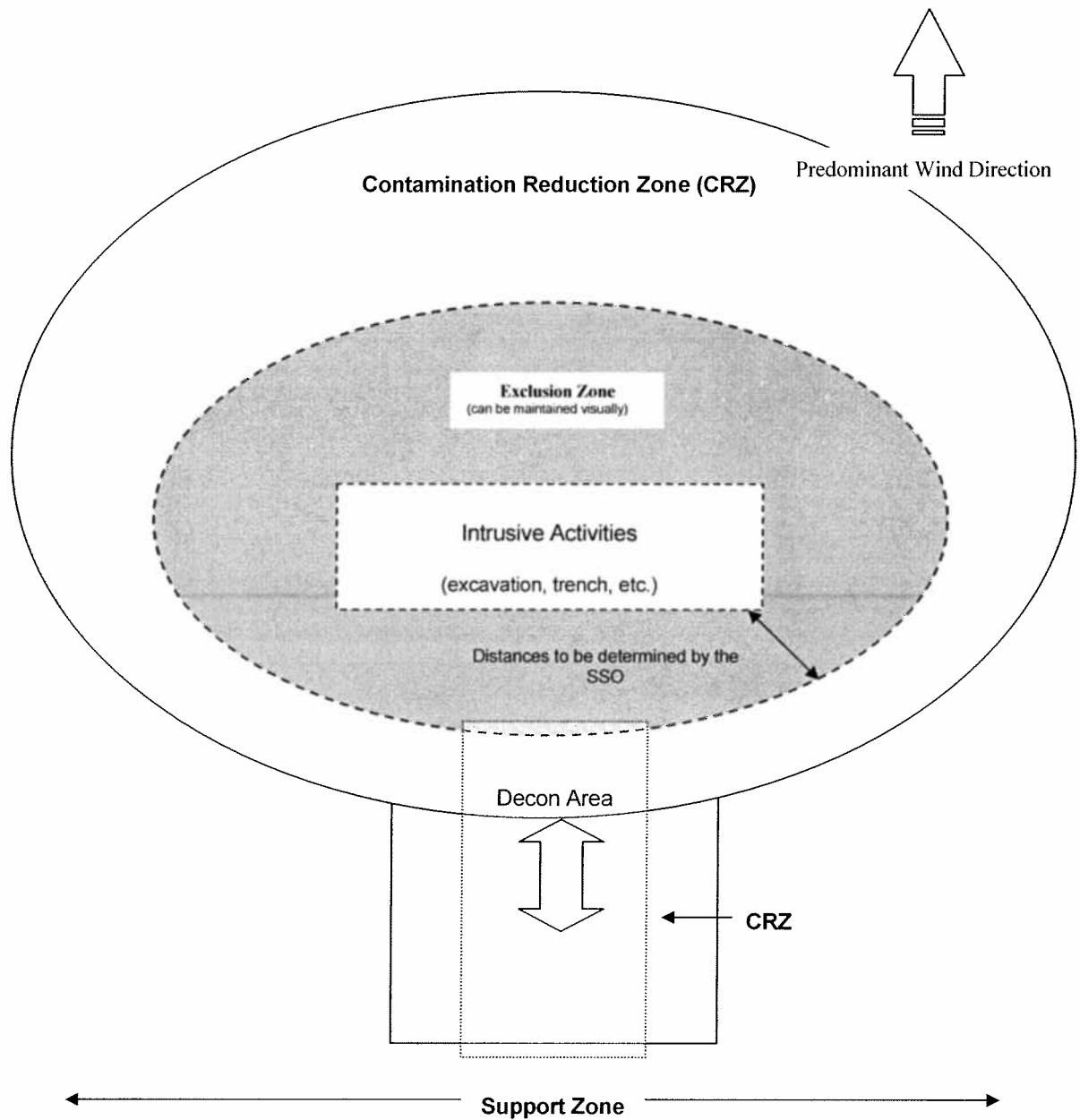
- Maintain security in the Support Zone and at access control points.
- Establish an identification system to identify authorized persons and limitations to their approved activities.
- Assign responsibility for enforcing authority for entry and exit requirements.
- When feasible, install fencing or other physical barrier around the site.
- If the site is not fenced, post signs around the perimeter and whenever possible, use guards to patrol the perimeter. Guards must be fully apprised of the hazards involved and trained in emergency procedures.
- Have the PM approve all visitors to the site. Make sure they have valid purpose for entering the site. Have trained site personnel accompany visitors at all times and provide them with the appropriate protective equipment.

To maintain site security during off-duty hours:

- If possible, assign trained, in-house technicians for site surveillance. They will be familiar with the site, the nature of the work, the site's hazards, and respiratory protection techniques.
- If necessary, use security guards to patrol the site boundary. Such personnel may be less expensive than trained technicians, but will be more difficult to train in safety procedures and will be less confident in reacting to problems around hazardous substances.
- Enlist public enforcement agencies, such as the local police department, if the site presents a significant risk to local health and safety.
- Secure the equipment.

Figure 8-1 Drilling Site Control Layout



**Figure 8-2 Example Earth Moving Site Control Layout**

## 9.0 Emergency Response Planning

### 9.1 Emergency Action Plan

Although the potential for an emergency to occur is remote, an emergency action plan has been prepared in accordance with SH&E 112, Emergency Action Planning for this project should such critical situations arise. The only significant type of onsite emergency that may occur is physical injury or illness to a member of the AECOM team. The Emergency Action Plan (EAP) will be reviewed by all personnel prior to the start of field activities. A test of the EAP will be performed within the first three (3) days of the project field operations. This test will be evaluated and documented in the project records.

Three major categories of emergencies could occur during site operations:

1. Illnesses and physical injuries (including injury-causing chemical exposure)
2. Catastrophic events (fire, explosion, earthquake, or chemical)
3. Safety equipment problems

#### 9.1.1 Emergency Coordinator

The duties of the Emergency Coordinator (EC) include:

- Implement the EAP based on the identified emergency condition
- Notify the appropriate project and SH&E Department personnel of the emergency (Table 9-3)
- Verify emergency evacuation routes and muster points are accessible
- Conduct routine EAP drills and evaluate compliance with the EAP

#### 9.1.2 Site-Specific Emergency Procedures

Prior to the start of site operations, the EC will complete Table 9-1 with any site-specific information regarding evacuations, muster points, communication, and other site-specific emergency procedures.

**Table 9-1 Emergency Planning**

Emergency	Evacuation Route	Muster Location
Fire/Explosion	During initial off-site property visits, the property and evacuation route will be sketched and amended to the HASP.	Southwest corner of the Site parking lot
Lightning		Vehicle muster area to be determined
Additional Information		
Communication Procedures	Hand held two-way radios will be provided for communication between each team member.	
CPR/First Aid Trained Personnel	Raimundo Matos, Joshua Millard	

### 9.1.3 Spill Containment Procedure

Work activities may involve the use of hazardous materials (i.e. fuels, solvents) or work involving drums or other containers. Where these activities exist, a site-specific Spill Reporting Card [project team must develop the spill reporting card] will be developed (Attachment D). Procedures in SH&E 503, Incident Spill Response as well as those outlined below will be used to prevent or contain spills:

- All hazardous material will be stored in appropriate containers
- Tops/lids will be placed back on containers after use.
- Containers of hazardous materials will be stored appropriately away from moving equipment.

At least one spill response kit, to include an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e. speedy dri) shall be available at each work site (more as needed).

- All hazardous commodities in use (i.e. fuels) shall be properly labeled.
- Containers shall only be lifted using equipment specifically manufactured for that purpose.
- For drums/containers, follow the procedures in SH&E 608, Handling Drums and Large Containers, to minimize spillage.

### 9.1.4 Safety Incident/Incident Reporting in case of incident Gillette to be notified

All near misses and incidents that occur on-site during any field activity will be promptly reported to the SSO and the immediate supervisor in accordance with SH&E 201, Incident Reporting. He should contact Philip Platcow, RSM at (617) 899-5403.

If any AECOM employee is injured and requires medical treatment, the Site Supervisor will contact the Regional Safety Manager, AECOM's Incident Reporting Line at (800) 348-5046, and the applicable Account Manager immediately. The Site Supervisor will initiate a written report, using the Supervisor's Report of Incident form (see SH&E 201). The Site Supervisor will complete the first two sections of this form and forward to the PM for completion of Section 3. The report will then be provided to the SH&E Professional before the end of the following shift.

If any employee of a subcontractor is injured, documentation of the incident will be accomplished in accordance with the subcontractor's procedures; however, copies of all documentation (which at a

minimum must include the OSHA Form 301 or equivalent) must be provided to the SSO within 24 hours after the accident has occurred.

All accidents/incidents will be investigated in accordance with SH&E 204, Incident Investigation. Copies of all subcontractor accident investigations, whether accomplished in accordance with their own procedures or SH&E 204, will be provided to the SSO within five (5) days of the accident/incident.

#### **9.1.5 Environmental Spill/Release Reporting in case of spill Gillette to be notified**

All environmental spills or releases of hazardous materials (e.g., fuels, solvents, etc.), whether in excess of the Reportable Quantity or not, will be reported according to the sequence identified in the Site-Specific Spill Reporting Card. In determining whether a spill or release must be reported to a regulatory agency, the Site Supervisor will assess the quantity of the spill or release and evaluate the reporting criteria against the state-specific reporting requirements, your applicable regulatory permit, and/or client-specific reporting procedures. In order to support the Site Supervisor and expedite the decision to report to a state regulatory agency, a site-specific Spill Reporting Card will be developed (Attachment D). If reporting to a state or Federal regulatory agency is required, AECOM has 15 minutes from the time of the spill/release to officially report it.

Chemical-specific Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Reportable Quantities for the known chemicals onsite are shown in Table 9-2.

**Table 9-2 CERCLA Reportable Quantities**

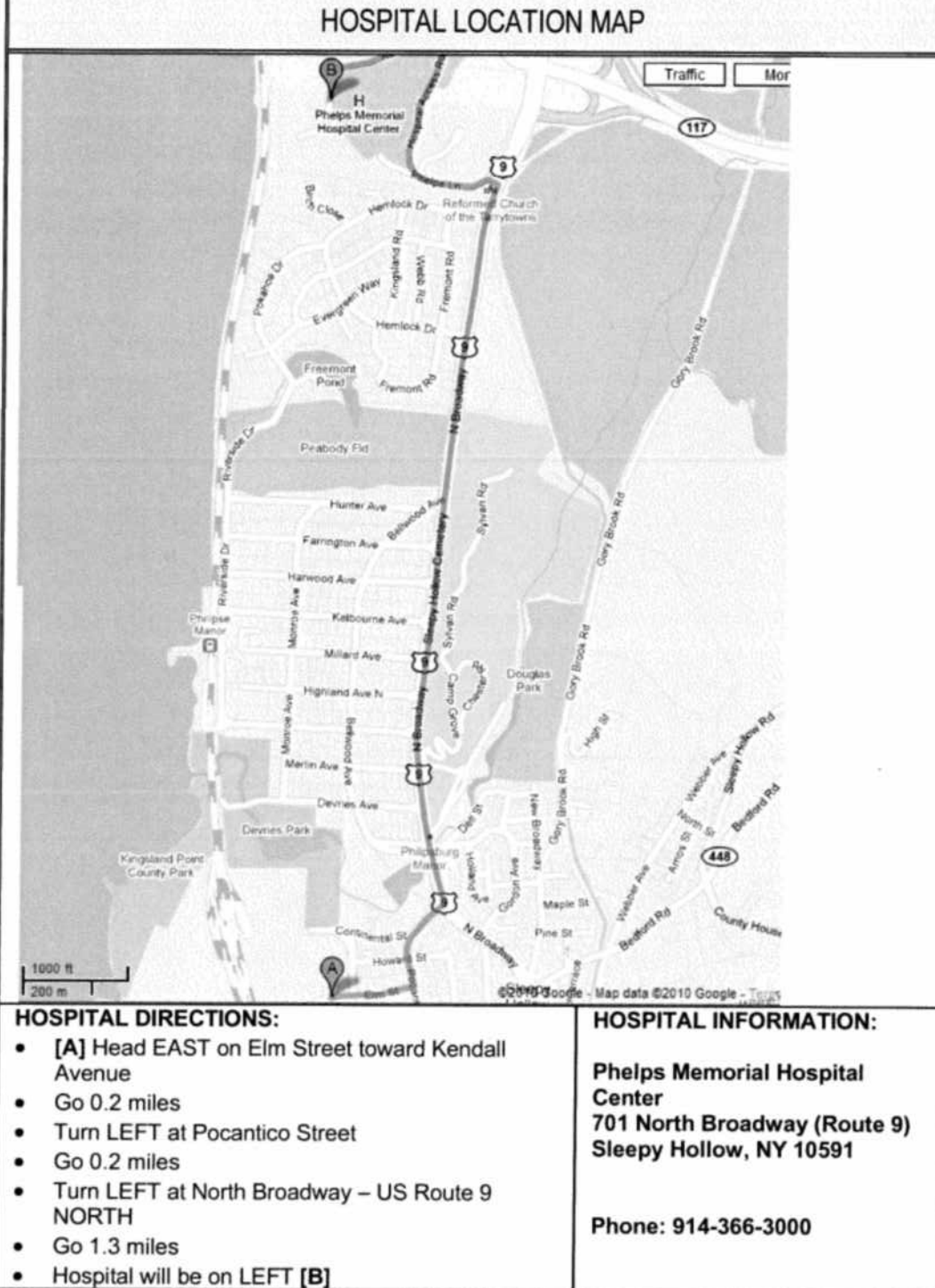
<b>Hazardous Substance</b>	<b>Regulatory Synonyms</b>	<b>Final RQ (lbs)</b>
Lead	N/A	10
Mercury	N/A	1

Note: CERCLA RQs can be found at: <http://www.epa.gov/superfund/policy/release/rq>

Table 9-3 Emergency Contacts

Emergency Coordinators / Key Personnel			
Name	Title/Workstation	Telephone Number	Mobile Phone
Bryan Turner	Client Contact	(203) 796-4333	(781) 267-1072
Victor Miles	Client Contact	(203) 796-4541	
Michael Doherty	Account/Client Manager	(860) 597-4260	(978) 846-2736
Steve Kostage	Project Manager	(978) 337-1519	
Scott McDonough	Site Engineer	(518) 951-2391	(518) 423-6240
Joshua Millard	Site Safety Officer	(978) 589-3000	(978) 424-8199
J. Bart Dawson, CIH	Regional Safety Manager	(210) 253-7552 (Office) (210) 372-1362 (Home)	(210) 240-3898
Philip Platcow	Regional Safety Health & Environment Manager		(617) 899-5403
Incident Reporting	Incident Reporting Line	(800) 348-5046	
Travis Gwin	DOT/IATA Shipping Expert	(303) 804-2312	(303) 694-4410
Organization / Agency			
Name			Telephone Number
Police Department (local)			911
Fire Department (local)			911
State Police			911
Ambulance Service ( <i>EMT will determine appropriate hospital for treatment</i> )			911
Emergency Hospital Route: See Figure 9-1			
WorkCare: 24-hr On-Call Occupational Nurse ( <i>minor First Aid assistance only</i> )			(800) 455-6155
Poison Control Center			(800) 222-1222
Pollution Emergency			(800) 292-4706
National Response Center			(800) 424-8802
Chem-Tel			(800) 255-3924
Title 3 Hotline			(800) 424-9346
Public Utilities			
Name			Telephone Number
Common Ground Alliance Nationwide <i>Call Before You Dig</i>			811

Figure 9-1 Emergency Care Hospital Route/Detail Map



## 10.0 Personnel Acknowledgement

By signing below, the undersigned acknowledges that he/she has read and reviewed the AECOM Health and Safety Plan for the [site name] site. The undersigned also acknowledges that he/she has been instructed in the contents of this document and understands the information pertaining to the specified work, and will comply with the provisions contained therein.

Print Name	Signature	Organization	Date

## **Attachment A**

### **Health and Safety Plan Pre- Entry Briefing Attendance Form**

**Health and Safety Plan Pre-Entry Briefing Attendance Form**

## Residential Site Inspections

<b>Conducted by:</b>		<b>Date Performed:</b>	
<b>Topics Discussed:</b>	1. Review of the content of the HASP (Required)		
	2.		
	3.		
	4.		

Printed Name	Signature	Representing

# **Attachment B**

## **Task Hazard Analyses**



# Job Safety Analysis

<b>JSA Type:</b> <input type="checkbox"/> Investigation <input type="checkbox"/> O&M <input type="checkbox"/> Office <input type="checkbox"/> Construction		<input type="checkbox"/> New <input type="checkbox"/> Revised		<b>Date:</b>	
<b>Work Activity:</b>					
<b>Personal Protective Equipment (PPE):</b>					
<b>Development Team</b>	<b>Position/Title</b>	<b>Reviewed By</b>	<b>Position/Title</b>	<b>Date</b>	
<b>❶ Job Steps<sup>1</sup></b>	<b>❷ Potential Hazards<sup>2</sup></b>	<b>❸ Control Measures<sup>3</sup></b>	<b>STOP Stop Work Criteria</b>		

<b>JSA Type:</b> <input type="checkbox"/> Investigation <input type="checkbox"/> O&M <input type="checkbox"/> Office <input type="checkbox"/> Construction		<input type="checkbox"/> New <input type="checkbox"/> Revised		<b>Date:</b>													
<b>Work Activity:</b>																	
<b>Personal Protective Equipment (PPE):</b>																	
<b>Development Team</b>		<b>Position/Title</b>		<b>Reviewed By</b>													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%; padding: 5px;">❶ Job Steps<sup>1</sup></th> <th style="width: 25%; padding: 5px;">❷ Potential Hazards<sup>2</sup></th> <th style="width: 25%; padding: 5px;">❸ Control Measures<sup>3</sup></th> <th style="width: 25%; padding: 5px;"> <div style="display: flex; align-items: center;"> <div style="background-color: #ccc; border-radius: 50%; padding: 2px 5px; margin-right: 5px;">STOP</div>           Stop Work Criteria         </div> </th> </tr> <tr> <td style="height: 200px;"></td> <td style="height: 200px;"></td> <td style="height: 200px;"></td> <td style="height: 200px;"></td> </tr> <tr> <td style="height: 200px;"></td> <td style="height: 200px;"></td> <td style="height: 200px;"></td> <td style="height: 200px;"></td> </tr> </table>						❶ Job Steps <sup>1</sup>	❷ Potential Hazards <sup>2</sup>	❸ Control Measures <sup>3</sup>	<div style="display: flex; align-items: center;"> <div style="background-color: #ccc; border-radius: 50%; padding: 2px 5px; margin-right: 5px;">STOP</div>           Stop Work Criteria         </div>								
❶ Job Steps <sup>1</sup>	❷ Potential Hazards <sup>2</sup>	❸ Control Measures <sup>3</sup>	<div style="display: flex; align-items: center;"> <div style="background-color: #ccc; border-radius: 50%; padding: 2px 5px; margin-right: 5px;">STOP</div>           Stop Work Criteria         </div>														

<b>JSA Type:</b> <input type="checkbox"/> Investigation <input type="checkbox"/> O&M <input type="checkbox"/> Office <input type="checkbox"/> Construction		<input type="checkbox"/> New <input type="checkbox"/> Revised		<b>Date:</b>	
<b>Work Activity:</b>					
<b>Personal Protective Equipment (PPE):</b>					
<b>Development Team</b>	<b>Position/Title</b>	<b>Reviewed By</b>	<b>Position/Title</b>	<b>Date</b>	
<b>❶ Job Steps<sup>1</sup></b>	<b>❷ Potential Hazards<sup>2</sup></b>	<b>❸ Control Measures<sup>3</sup></b>	<b>STOP Stop Work Criteria</b>		

## **Attachment C**

### **Material Safety Data Sheets**

## **Attachment D**

### **Site-Specific Spill Reporting Card**



## Environmental Release/Spill Emergency Procedures

In the event of an environmental release or spill, the following procedures will be followed:

1. Secure the area and contain the release or spill, if possible.
2. If emergency services are required, contact the Local Emergency Services at 911 to report the quantity and contents of the release or spill.
3. Contact the AECOM Project Manager and the District Health and Safety Manager to report the details of the incident
4. Notify the Site Supervisor at (978) 434-6077 to report the contents and quantity of the release or spill.
5. If the release or spill meets state, federal or local reporting requirements and AECOM is directed by the FWFC – DNSC Facility Team Leader, report the release or spill to the appropriate regulatory agencies (see other side).
6. Call the AECOM Incident Reporting Line at 800-348-5046 to report the incident.
7. Provide a written statement summarizing the incident to your Supervisor to be included in the Supervisor's Report of Incident (AECOM SH&E SOP 201, Incident Reporting).



### REGULATORY AGENCY CONTACT NUMBERS FOR REPORTING CHEMICAL SPILLS AND RELEASES

When a chemical spill or release occurs in Texas, there are a number of reporting and notification requirements that must be followed by the agency or individual responsible for the spill. Therefore, prior to notifying a regulatory agency(s) of a release or spill, the appropriate regulations should be consulted to determine reportable quantities, reporting requirements, scenarios, notification timelines, required documentation and/or agencies to contact. In some cases, reporting or notification of a spill or release to a regulatory agency(s) may not be required.

A list of regulatory agencies and contact numbers is provided below, but is not inclusive of all release or spill scenarios, such as transportation accidents involving hazardous substances, releases to air or releases from oil and gas wells or pipelines. In some cases, several regulations overlap requiring notification to multiple agencies. However, in all cases, the FWFC-DNSC contingency plan should be consulted first prior to notification of a regulatory agency.

Agency	Phone #	Examples of When To Call
National Response Center (NRC)	1-800-424-8802	Releases from a fixed facility that exceed the RQ for that specific chemical (per SARA Title III List of Lists); immediate verbal notification  Releases of petroleum products and certain hazardous substances listed under the Federal Clean Water Act (40CFR Part 116)  Releases of hazardous substances from regulated storage tanks in excess of RQ (40 CFR Part 302.6); report within 24 hours
Texas Commission on Environmental Quality (TCEQ) 24-hr Emergency Response Phone Number	1-800-832-8224	Releases from a fixed facility that exceeds the RQ for that specific chemical (per SARA Title III List of Lists); immediate verbal notification followed by written  Release of hazardous waste stored in tanks at RCRA permitted facilities and large quantity generators greater than one pound; written notification within 30 days  Releases of any chemical, oil, petroleum product, sewage, etc., no matter how small, which may enter waters of the state (including surface water, ground water and dry gullies or storm sewers leading to surface water); immediate verbal notification; written notification within 5 days  Releases of petroleum products and certain hazardous substances listed under the Federal Clean Water Act (40CFR Part 116)
Nueces County Emergency Management Coordinator	361-826-1100	Petroleum releases of 25 gallons or more (or that cause a sheen on nearby surface waters) from regulated storage tanks; verbal notification within 24 hours  Releases of hazardous substances from regulated storage tanks in excess of RQ (40 CFR Part 302.6); report within 24 hours  After-hours contact the TCEQ's Emergency Spill Reporting Line
TCEQ Regional Office: Nueces County (TCEQ Region 14, Corpus Cristi, Texas)	361-825-3100	Releases from a fixed facility that exceeds the RQ for that specific chemical (per SARA Title III List of Lists); immediate verbal notification followed by written

## **Attachment E**

### **Supervisor's Accident Investigation Report Form**

# S3NA-004-FM1 SUPERVISOR'S REPORT OF INCIDENT

## AECOM

1. Seek immediate medical attention if necessary
2. Employee must report all incidents to their supervisor immediately.
3. Report the incident to the appropriate incident reporting line.

US (800) 348-5046

### Organization Information

Region: ☐ West ☐ Midwest ☐ South

☐ Mid-Atlantic ☐ Northeast

☐ Can-East ☐ Can-Central ☐ Can-West

District:

Department #:

Project Number:

Business Line: ☐ Water ☐ Transportation ☐ Energy & Power ☐ Environment

☐ PDD ☐ AECOM Corporate ☐ Shared Services Center

Client Name:

Project Name:

### Administrative

Employee/Claimant Name:

Employee Number:

Work Phone:

Cell Phone:

Employee Status ☐ Full Time ☐ Part Time

☐ Subcontractor/Subconsultant

☐ Temp Agency Employee ☐ Third party Employee

Home Office Location:

Job title:

List Witnesses:

*REMEMBER: Reporting an incident does not imply guilt, but assists in preventing further incidents or injuries.*

### Description of Event

Type of Occurrence: ☐ Personal Injury/Illness ☐ Property Damage ☐ Environmental Damage/Spill  
☐ Motor Vehicle Accident ☐ Boating Incident ☐ NOV/Citation ☐ Non work related  
☐ Reputational (AECOM, client, other)

Date of Incident:

Time of Incident:

Date Reported to Supervisor:

Time Reported to Supervisor:

Incident Location:

City:

State/Province/Territory:

Zip/Postal Code:

Were any Subcontractors or other persons involved: ☐ Yes ☐ No

If Yes, please provide details

Description of Incident:

*What, when, where, why, how? Attached notes/diagrams as required.*

<b>S3NA-004-FM1</b> <b>SUPERVISOR'S REPORT OF INCIDENT</b>		<b>AECOM</b>
<b>Personal Injury</b>		
<b>Type of Injury:</b> <input type="checkbox"/> First Aid (treated on-site) <input type="checkbox"/> Medical Aid (treated by professional) <input type="checkbox"/> Fatality <input type="checkbox"/> Restricted Duty <input type="checkbox"/> Lost Time (off work beyond day of Injury)		
Describe the Injury:		
Body Part Injured:		
Was a doctor or hospital visited? <input type="checkbox"/> Yes <input type="checkbox"/> No		If yes, when:
Medical Received:		Doctor/Hospital Name:
Provider Address:		Phone Number:
<b>On-Site/Corrective Actions</b>		
Incident Immediately Reported On-Site To:		
What corrective actions were immediately implemented on-site?		
What long-term or permanent corrective actions are recommended?		
<b>Property Damage (complete for property damage only)</b>		
<b>Type of Damage:</b> <input type="checkbox"/> AECOM Property <input type="checkbox"/> Motor Vehicle (complete MVA Report Page 3) <input type="checkbox"/> Spill or Release of a Hazardous Substance <input type="checkbox"/> Major Structural Failure <input type="checkbox"/> Client, Subcontractor, other:		
Describe the specific damage, structural failure or hazardous release:		
Where can the property be seen?		
Property owner name:		Contact Information:
Is there any potential for civil, criminal or regulatory liability against AECOM or an employee? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, discuss with AECOM Regional Counsel before proceeding with any further reporting.		
Rank the severity of the damage: <input type="checkbox"/> Minor <input type="checkbox"/> Serious <input type="checkbox"/> Major		
Indicate who has been notified of the event (e.g., Owner/Operator, State (US) or governing body of labour, OH&S (Canadian provincial/territorial ministry of labour/environment, etc.)?		
<b>Acknowledgements</b>		
Employee Signature:		Date:
Witness Signature(s):		Date:
Manager Signature:		Date:
<b>For Regional SH&amp;E Manager Use Only:</b>		
Corrective Actions requiring implementation by SH&E Manager:		Rationale:
Signature:		Date:
<b>Recordability Determination</b> <input type="checkbox"/> First Aid <input type="checkbox"/> Recordable <input type="checkbox"/> Recordability Undetermined <input type="checkbox"/> Non Work <input type="checkbox"/> Property Damage <input type="checkbox"/> General Liability <input type="checkbox"/> Vandalism		

**Attention:**

This form must be completed and emailed to [sri@aecom.com](mailto:sri@aecom.com)  
 or forwarded to the regional SH&E Manager within one (1) business day  
 following the occurrence of the incident.

# MOTOR VEHICLE ACCIDENT (MVA) REPORT

**AECOM**

## Administrative

AECOM Vehicle: ☐ Fleet ☐ Rental ☐ Personal

Job Activity at time of MVA:

Date of MVA: Time of MVA:

Location of MVA:

Supervisor/Manager:

Number of Vehicles involved:

**REMEMBER: Stay Calm. Do not admit guilt.**

## AECOM Driver Information

Driver:

AECOM Passengers:

Other Passengers:

Driver's License:

Province/State Issued:

Expiration Date:

Injuries to Driver:

Injuries to Passengers:

## AECOM Vehicle Information

Year:

Make:

Model:

Serial/VIN #:

License Plate #:

Registration #:

Owner:

Insurance Company:

Policy #:

Commercial Motor Vehicle :

If Rented or Personal, Contact Information of Owner:

Rank the severity of the Damage to the vehicle: ☐ 0 - \$500 ☐ \$500 - \$1000 ☐ \$1000 - \$4000 ☐ >\$4000

Description of Damage to the body of the Vehicle:

## Other Driver/Vehicle Information

Year:

Make:

Model:

SERIAL/VIN #

License Plate #:

Registration #:

Driver's Name:

Contact Info:

License #:

Owner:

Insurance Company:

Policy #:

If Rented or Personal, Contact Information of Owner:

Description of Damage to the body of the Other Vehicle:

## Accident Description

Exact location of MVA (highway km, intersection, exact address, etc.)?

Other Property Damaged:

Describe the events leading up to and the incident (Report Facts only: speed of vehicles, direction traveling, weather conditions, etc. Do not give opinions regarding cause of accident or loss.):

Did the police attend the scene: ☐ Yes ☐ No Citation Issued: ☐ Yes ☐ No To Who:

Police :

Contact Info:

Witness:

Contact Info:

Witness:

Contact Info:

Submit this MVA Report with a completed Supervisors Report Of Incident to the appropriate manager

Has a Supervisors Report of Incident been completed? ☐ Yes ☐ No

Completed by:

Signature:

## **Appendix B**

### **Community Air Monitoring Plan (CAMP)**



Environment

Prepared for:  
The Gillette Company  
Bethel, CT

Prepared by:  
AECOM  
Chestnut Ridge, NY  
60157499  
June 28, 2010

# Appendix B

## Community Air Monitoring Plan (CAMP)

**Duracell Inc. Site**  
**Sleepy Hollow, New York**  
**NYSDEC Site Registry No. 360011**

## Contents

<b>1.0 Introduction.....</b>	<b>1-1</b>
<b>2.0 Community Air Monitoring Plan.....</b>	<b>2-1</b>
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## List of Attachments

Attachment 1 NYSDOH Generic Community Air Monitoring Plan

## 1.0 Introduction

The Community Air Monitoring Plan (CAMP) provides the procedures for air monitoring during field activities that will be employed for the Remedial Investigation (RI) and Interim Remedial Measures (IRMs) at the Duracell Inc. Site (hereinafter referred as the "Site"). The Site is located at 60 Elm Street in the Village of Sleepy Hollow, Westchester County, New York and is listed by the New York State Department of Environmental Conservation (NYSDEC) as Registry No. 360011.

The CAMP is part of the Remedial Investigation Work Plan (RIWP) and the Interim Remedial Measure Work Plan (IRMWP) that have been prepared pursuant to the Order on Consent and Administrative Settlement, Index No. W3-1145-09-11, Site No. 360011 (Order) between The Gillette Company (Gillette) and the NYSDEC, effective January 1, 2010. This conceptual IRMWP has been prepared by AECOM on behalf Gillette.

The Order calls for a Remedial Investigation (RI) and Interim Remedial Measures (IRM) to be implemented at the Site on an expedited basis. The RI is described in a companion document titled the "Phase I Remedial Investigation Work Plan, Duracell Inc. Site, Sleepy Hollow, New York, NYSDEC Site Registry No. 360011", (AECOM, August 2010), which is referred, hereinafter, as the RIWP.

Community air monitoring will be performed in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan, included as Attachment 1 of this document. The Community Air Monitoring Plan (CAMP) is not intended for use in establishing action levels for worker respiratory protection. Instrument readings obtained as part of the CAMP will be recorded and available for State (NYSDEC and NYSDOH) personnel to review.

Real-time air monitoring for particulates (i.e., dust) will be conducted continuously for all ground intrusive activities (i.e., installation of soil borings, test pits, soil excavation, backfilling, etc.). The work areas are potentially contaminated with heavy metals (i.e., mercury and lead), but there is no evidence to suggest that the work areas may also be contaminated with volatile organic compounds (VOCs). Therefore, community air monitoring for VOCs is not anticipated at this time.

## 2.0 Community Air Monitoring Plan

### 2.1 CAMP Implementation during RI Activities

Because the RI activities will, in many cases, be conducted within 20 feet of potentially exposed structures (residences), the CAMP will initially be implemented in the breathing zone (BZ) of each work area. The CAMP monitoring will be performed using a miniature real-time aerosol monitor (mini-RAM or equivalent) to measure monitor airborne dusts. Depending on particulate readings taken within the breathing zone (i.e., at the borehole), the CAMP area may be expanded.

#### 2.1.1 Continuous Air Monitoring (PM-10)

The CAMP will be implemented at the perimeter of the exclusion zone if the following conditions occur in the breathing zone:

- PM-10 particulates (i.e., less than 10 micrometers in size) in breathing zone exceed  $0.1 \text{ mg/m}^3$  above background (upwind perimeter of the exclusion zone) for the 15-minute average.
- Airborne dust is observed leaving the work area.

The CAMP monitoring may be extended beyond the perimeter of the exclusion zone to meet the specifications as identified in the NYSDOH Generic Community Air Monitoring Plan (Attachment 1 of this document) depending on the dust readings observed at the perimeter of the exclusion zone.

#### 2.1.2 Confirmatory NIOSH Air Monitoring (Optional)

Optional ambient air monitoring may be performed as a confirmation of the continuous particulate (PM-10) monitoring described above. Personal air sampling pumps would be deployed at selected locations. Appropriate in-line sampling media (e.g., sorbent tube) would be employed to obtain samples for laboratory analysis of particulate mercury and lead by method and NIOSH-6009 and NIOSH-7300, respectively, or equivalent. Analysis of mercury vapor would be performed by OSHA ID-140, or equivalent. Recommended sampling durations as specified in the methods may be adjusted as needed to reflect the actual duration of field activities.

### 2.2 CAMP Implementation during IRM Construction Activities

During IRM activities, the CAMP will be implemented to meet the specifications as identified in the NYSDOH Generic Community Air Monitoring Plan (Attachment 1 of this document), and air monitoring will be performed continuously for all ground intrusive activities. Location-specific CAMP procedures will be developed for each IRM area during the development of the specific IRM procedures for the particular area. The location-specific procedures will be based on factors such as the proximity and relationship of residences to each IRM work area. The CAMP monitoring will be performed using a miniature real-time aerosol monitor (mini-RAM or equivalent) to measure monitor airborne dusts.

### 2.3 CAMP Particulate Action Levels

The following action levels for particulates are in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan:

Action Level	Response
> 0.1 mg/m <sup>3</sup> above background for the 15 minute average or if airborne dust is observed leaving the work area	Employ dust suppression techniques
0.1 to 0.15 mg/m <sup>3</sup>	Work may continue with dust suppression techniques provided downwind PM-10 particulate levels do not exceed 0.15 mg/m <sup>3</sup> above background for the 15-minute average and airborne dust is not observed leaving the work area
> 0.15 mg/m <sup>3</sup> with dust suppression techniques implemented	Cease operations. Contact PM and BC Director of Health and Safety or designee immediately.

The NYSDOH CAMP is provided in Attachment 1 of this document for additional details associated with work stoppage and restart.

### 2.4 Data Recording

Air monitoring readings will be measured and recorded both electronically via the instrument data logger, and manually using a logbook, and will be available for review by the NYSDEC and NYSDOH. Steps taken to control dusts (e.g. watering) and any additional measures taken to address any exceedances, will also be documented. CAMP logs will be included in the construction completion report (CCR) for each property included as part of the IRM work.

### 2.5 Noise

Work activity scheduling will comply with local noise ordinances, which specify permitted noises as including construction work, between the hours of 8:00 am and 7:00 pm weekdays and 9:00 am and 6:00 pm on Saturdays. No construction shall be permitted on Sunday unless permission is first obtained from the Police Department and Department of Fire and Life Safety.

## **Attachment 1**

### **NYSDOH Generic Community Air Monitoring Plan**

## New York State Department of Health Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

### Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

**Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures.** Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

**Periodic monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

#### VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

### Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ( $\text{mcg}/\text{m}^3$ ) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed  $150 \text{ mcg}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \text{ mcg}/\text{m}^3$  above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \text{ mcg}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

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